LEADERSHIP STYLE, ORGANISATIONAL CULTURE AND DISPUTES IN PUBLIC CONSTRUCTION

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Abstract

The increasing occurrence of construction disputes has compounded the fragmentation, complexity and adversarial nature of the construction industry. Disputes are associated with high cost, delays, low quality and even the destruction of important relationships among project parties that have taken long years to build and disputes have become 'the rule rather than the exception'. Despite considerable attempts in literature towards dispute minimization in construction projects, very few studies have addressed the roots behind the occurrence of disputes. Leadership and organisational culture are key influential factors in the construction industry. Effective project leaders should, not only achieve the goals and objectives of the organisations they lead, but also, minimize conflicts and disputes. Also by instilling strong organisational culture, construction organisations can control dispute to minimum levels. Therefore, this study aims to draw research attention toward the core of disputes by providing theoretical insight and empirical investigation concerning the roots of this problem. A framework is presented to minimize disputes in public organisations of construction.

The mixed methodology adopted includes a survey conducted to investigate the current practice and semi-structured interviews to explore best practice that combined to form a foundation for the framework that assess leaders and organisations to minimize construction disputes. The findings revealed that among the most significant dispute causes are: delay by the contractor, lack of team spirit, slow contractor response, poor communication, unrealistic tendering, inadequate contractor selection, unforeseen site conditions and inadequate site supervision. Significant correlations were noted between transformational leadership and the most significant dispute causes. Also significant association was indicated between clan culture and disputes. Emerging from the study is that transformational leadership and clan culture appear to be the most suitable leadership style and organisational culture, respectively, in public construction organisations (owner organisations) that help minimize disputes with contractors.

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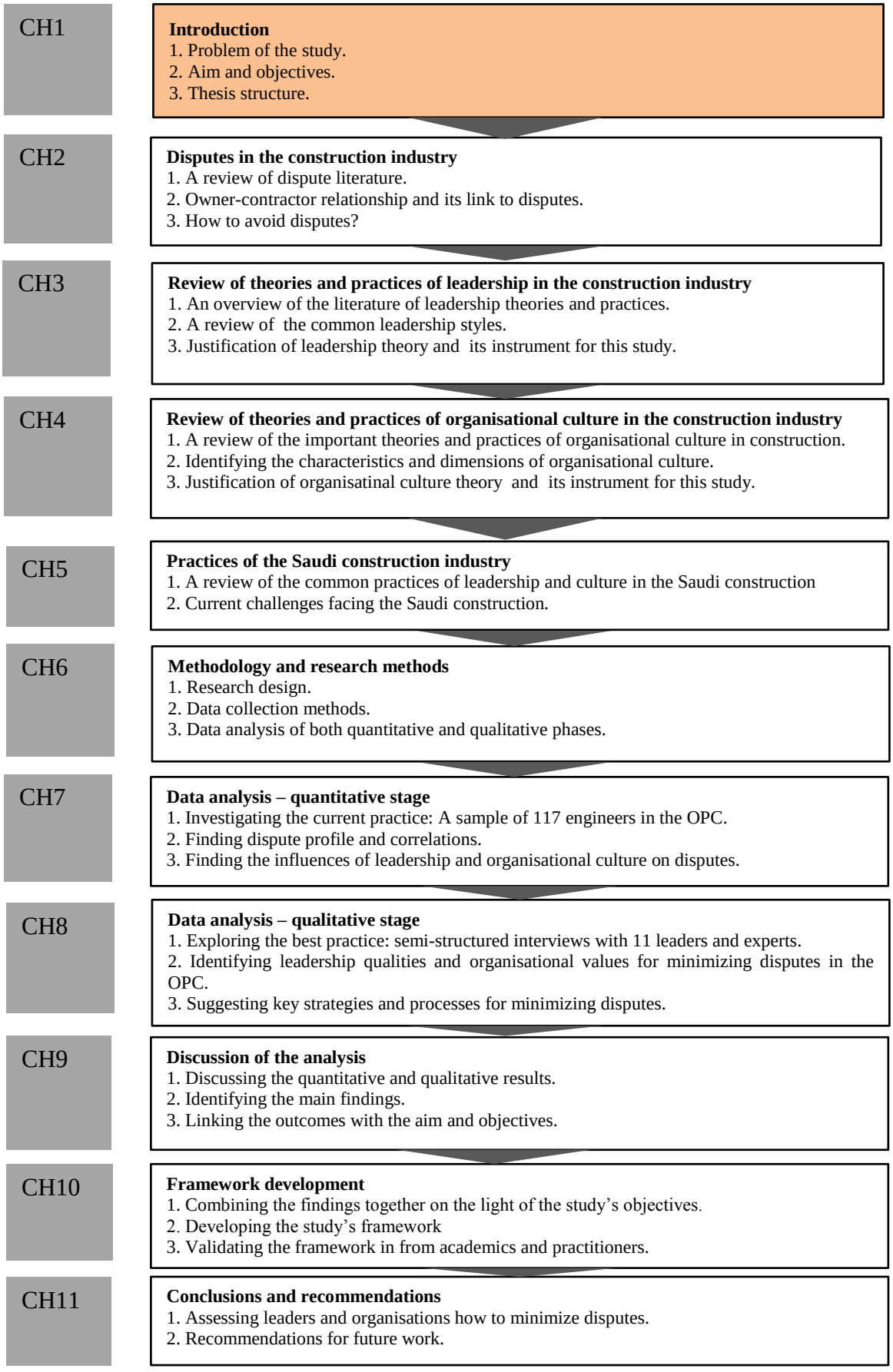
List of acronyms

Acronym	Description
OPC	Owner organisations of Public Construction
MLQ	Multifactor Leadership Questionnaire
OCAI	Organisational Culture Assessment Instrument
CVF	Competing Values Framework
ADR	Alternative Dispute Alternatives
LMX	Leader Member Exchange
LPC	Least Preferred Co-worker
LBDQ	Leadership Behaviour Description Questionnaire
OCP	Organisational Culture Profile
PWC	Public Work Contract
TRC	Transactional leadership
TRF	Transformational leadership
LF	Laissez-fair leadership
IA	Idealized Attributes
IB	Idealized Behaviours
IM	Inspirational Motivation
IS	Intellectual Stimulation
IC	Individual Consideration
TCR	Contingent Reward
TMA	Mgmt. by Exception (Active)
TMB	Mgmt. by Exception (Passive)
EE	Extra Effort
EF	Effectiveness
SAT	Satisfaction
OCD	Hierarchy culture
OCA	Clan culture
OCC	Market culture
OCB	Adhocracy culture

1 Chapter one - Introduction



1.1. Introduction

In this introduction, the topic of the research is discussed by providing a brief background and explaining the problem researched in this study. The aim and objectives are presented as outlining the research questions. The research design and the research methods conducted are demonstrated. The main themes and research characteristics are addressed through a presentation of the structure of the thesis.

1.2. Background of the study

Leadership and culture are deemed key success factors in the practices of every organisation today. Since the beginning of the last century, scholars and researchers have undertaken continuous research unpacking the relationship between leadership and culture in the organisational context. These prominent studies have identified the intertwined influence of leadership and culture on organisations (Deal and Kennedy, 1982; Peters and Waterman, 1982; Bennis and Nanus, 1985; Bass, 1985; Kilmann, Saxton, and Serpa, 1985; Hater and Bass, 1988; Coeling and Wilcox, 1988; Ott, 1989; Cooke and Lafferty, 1989; Bass, 1990; Denison, 1990; Ward and Kumiega, 1990; Hein and Nicholson, 1994; Bass and Avolio, 1994; Bass, 1998; Cameron and Quinn, 1999; Bryman, 2004; Schein, 2004; Avolio and Bass, 2004). Construction organisations are project-based organisations that operate in complex, multi-cultural, dynamic and challenging contexts. The challenging environment of construction project management requires effective leadership coupled with a strong culture.

Turner and Müller (2005) investigated leadership in the literature of project management. Surprisingly, they concluded that, while leadership was considered a critical success factor in the management of organisations, the leadership style of project managers was not mentioned as a success factor. Similarly, Toor and Ogunlana (2006) found a gap in the research regarding leadership skills development along with

the findings of Toor and Ofori (2006) on the Project Management Body of Knowledge (PMBOK), where they noted limited research on leadership. Despite the scarcity of leadership studies in this area, many researchers have emphasised the real need for effective leadership in modern project management (Odusami, 2002; Long *et al.,* 2004; Toor and Ogunlana, 2005; Toor and Ofori, 2006).

Culture, on the other hand, plays a key role in modern project management, particularly with the association of an array of continuous challenges. Local and international project managers deal with a variety of cultures, ethnicities and different backgrounds among team members. Understanding culture and cultural differences can sustain the needed harmony and cohesiveness within teams. Several studies have emphasised the importance of organisational culture in the success of organisational management. Liu and Fellows (1999) reported a positive effect on overall outcomes, and Gale (1992) found that a strong culture can reduce conflicts in construction projects. Organisational culture has an apparent effect on performance and effectiveness (Cameron and Quin, 2011; Denison, 1999; Xiaojuan, 2007), on leadership, management strategies and decision making processes (Wince-Smith, 2007) and affect complexity of mega projects (Brockman,2009).

The increasing occurrence of disputes in the construction industry has been noted by a number of commentators. This notable increase comes from the rapid growth and complexity that accompany today's construction projects. Disputes are associated with high cost, delays, low quality and even the destruction of important relationships among project parties that have taken long years to build (Ashworth, 2006; Fenn, 2007). Disputes and conflicts have become 'the rule rather than the exception' (Steen, 2002; Ashworth and Hogg, 2007).

The high percentage of disputes in construction, when compared with other businesses in occurrence and magnitude, is linked to the nature of the construction industry as a 'project-based' context such that each project is a special case and differs from other

projects (Chin, 2003). A construction project has a group of parties that work together, and every party has its own organisational culture, ethics, values and attitudes. The resulting interactions are affected by adversarial attitudes among the involved parties. In addition to these attitudinal behaviours, the context is associated with risks and a notable increase in uncertainties (Ashworth and Hogg, 2007; Chin, 2003). Fragmentation and short-term operation are also factors that are inherent in the construction industry (Chan and Chan, 2004).

The dispute literature focuses mainly on two areas of research: dispute causation and dispute resolution methods. The outcomes in these areas have similarities. People, process and product have been identified as the main roots of disputes (Diekman *et al.*, 1994). Other researchers have divided the causes of disputes into root and proximate causes of disputes (Kumaraswamy, 1997). Busby and Hughes (2004) defined 'pathogens' as phenomena that are causing errors and they categorised them into seven groups: practice, task, circumstance, organisation, system, industry and tool. Love *et al.* (2008) suggested that organisational management practices, people's behaviours and project management strategy have a significant impact on dispute occurrences.

In this context, Acharya *et al.* (2006) grouped the causes of conflict into four root factors: weak project leadership, weak contractor selection, weak project management and professional attitudes. Mansfield *et al.* (1994) argued that most of the problems are human and management problems, not technical in nature. Mitropoulos and Howell (2001) identified three basic factors that directly affect disputes: project uncertainty, contractual problems and opportunistic behaviour. Blake (2006), in a study on the Australian construction industry, found that cost and schedule overruns were the two most significant factors contributing to disputes. Beside the above, Acharya *et al.* (2006) reported that 'weak project leadership' is also directly responsible of more conflicts taken place between different project parties.

1.3. Statement of the research problem

As discussed above, a gap in the dispute literature is found in understanding different aspects of the dispute problem. Most previous studies have focused on identifying the causes of disputes, without deeper insight into how these disputes are emerged, what are the influences of surrounding factors on disputes and how they are related to each other. Therefore, this study provides theoretical insight and empirical investigation concerning the influences of 'leadership style' and 'organisational culture' on disputes. This will be achieved by identifying the most frequent dispute causes and examining their correlations with leadership style and organisational culture. A framework is developed based on these correlations to minimize disputes.

Public construction is subject to conflicts and confrontational attitudes more than other sectors, which makes it fertile ground for more conflicts and disputes. This is due to the different attitudes and goals found in the current practices of the involved organisations such as owners (clients), consultants and contractors. The owner organisations have the supervision role in this sector and thus have the authority to manage the sponsored projects. If the relationship between owners and contractors was not positively maintained, conflicts and disputes could be exhibited in their interactions. Minimising disputes can help in building successful relationships throughout the public sector. Therefore, this research investigates the influences of leadership style and organisational culture on disputes in owner organisations of public construction.

From the previous overview of dispute research, it can be concluded that a plethora of research exists on the causation of disputes. However, these studies took programmatic approaches, resulting in poor theoretical grounding, as mentioned in the CRC report (CRC, 2007). The report added that current dispute studies require deeper investigation and shifted focus towards a diagnostic approach to dispute roots through structural, cultural and behavioural issues that dominate the industry's practices rather than proximate symptoms. The needed work should also go deeper to the core of disputes

that are responsible mainly for litigation and other serious consequences. The CRC report necessitated that researchers must find effective ways to avoid disputes.

1.4. Theory of the study

This study involves three main areas of research namely: leadership style, organisational culture and construction disputes, as shown in Figure 1.1. To accomplish the aim, the research builds upon several existing theories. Regarding leadership style, the study is based on the full range theory of leadership (Avoli and Bass, 2004), in which three leadership styles are involved: transformational, transactional and laissez-faire. The theory of organisational culture that is used here is established by Cameron and Quinn (1999-2004). This theory has four dimensions: hierarchy, adhocracy, clan and market.

To measure leadership style, the Multifactor Leadership Questionnaire (MLQ) instrument was used to measure the three leadership styles of the full range theory. This instrument includes 45 questions with twelve subscales that identify the transformational, transactional and laissez-faire leadership styles. The instrument used to measure organisational culture was the Organisational Culture Assessment Instrument (OCAI) that contains 24 questions with sex dimensions as shown in Appendix A.

The adopted theories and instruments used have been intensively discussed in the literature. They have been reportedly validated and tested for reliability by numerous researchers, which makes them empirically validated tools. It has been reported that these theories of leadership and organisational culture are helpful in describing what the researchers intended to investigate by presenting a clear picture of the final research outcomes.

The research theory accepts that leadership and organisational culture are intertwined, as theorized by Bass and Avolio (1993) and Schein (2004). This implies that both

constructs are keys to understanding the 'cultural phenomenon in organisations'. Bass and Avolio (1994) supported the argument of Schein (1996) admitting an ongoing interlink is exhibited. This implies that leaders create cultures and also shaped by the new cultures. The main components employed in this study are shown in Figure 1.1 in page 8.

1.5. Research aim, research questions and objectives

This study is based on data collected from the current practice based on the scientific reality that knowledge is gained by experience. By investigating the current practice of public construction, two major points can be achieved. The first is to identify the problems and deficiencies in the current practice and compare them to what has been reported in the literature. The second major point is to suggest, based on the literature and the current practice, effective solutions to the identified problems.

Therefore, the main aim of this study is to investigate the influences of leadership style and organisational culture (Independent variables) on disputes (dependent variable) in the Owner Organisations of Public Construction (OPC) in Saudi Arabia (SA). The reason behind choosing OPC in SA, particularly, is that the researcher's experience for about 20 years was in the OPC as a project manager and therefore data was accessible in those organisations. While a researcher can clearly notice the scarcity of dispute research in this sector, SA is part of the Middle East that has an increasing number of disputes (Allen, 2012). The study's aim is accomplished by examining the correlations of the variables for the purpose of developing a reliable framework to minimize disputes. To meet the identified aim adequately, the following research questions are addressed:

1. What are the most frequent disputes in public construction in SA?
2. What is the dominant leadership style in the OPC of SA?
3. What is the dominant organisational culture in the OPC of SA?
4. What kind of influences do leadership style and organisational culture have on disputes in the current practice of the OPC?

5. How can both leadership style and organisational culture work effectively to minimize disputes in the OPC?
6. What are the key strategies and techniques to be incorporated in the practices of the OPC that effectively help in minimizing disputes?

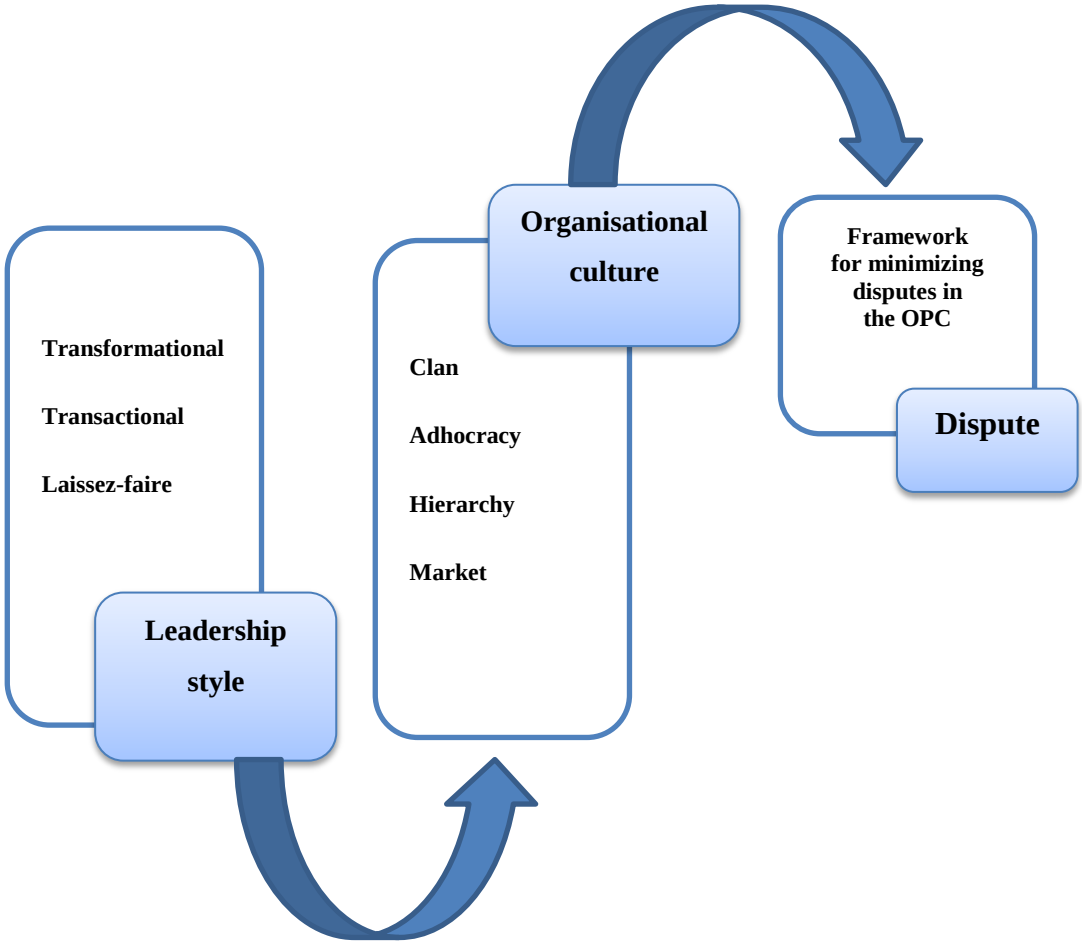


Figure 1.1: The main components of the study.

These questions are addressed at the beginning of the study to cover the main points to be investigated in light of the main aim mentioned, and to answer these questions, the following objectives are set:

I. Investigate the current practice of disputes, leadership and organisational culture in the owner organisations in SA. This is achieved by identifying the most frequent disputes as one part of this stage. The organisational culture profile and leadership style are identified in the owner organisations to visualise the main cultural characteristics (main survey).

II. Examine the correlations among leadership, organisational culture and disputes to investigate how leadership and organisational culture influence disputes. Studying these influences will lead to the development of the framework (main survey).

III. Explore the best practice in the OPC of leadership and organisational culture by identifying the key characteristics of the two constructs that can enable leaders and organisations to minimize disputes (semi-structured interviews).

IV. Develop a reliable framework to assist leaders of the OPC and organisations to minimize disputes based on the objectives I, II and III.

V. Validate the developed framework for the purpose of suitability and effectiveness by (survey).

1.6. Scope and limitation of the study

This study intentionally focuses on studying the correlations of two important factors, leadership and organisational culture, with disputes. The influences of leadership style and organisational culture are investigated with the insight of providing an effective assessment to leaders and organisations. The investigated disputes are those that emerge between project parties or organisations, particularly between the owner and contractor. This is because the majority of disputes taken place in this context are mainly between the owner and contractor. Minimum level of disputes can be found with other parties like consultants. The study excludes conflicts and disputes that take place between individuals or teams inside organisations. In addition, this study is limited to avoiding

disputes, and it is not related to dispute resolution or conflict management; the suggested strategies and processes are to be implemented before disputes emerge. To accomplish this goal, the study was applied on owner organisations operating in public construction in SA. The framework is based on the current practice and best practice in owner public organisations. This reveals that the framework may not suitable for contractor or consultant organisations or other construction organisations.

1.7. Research methodology

The methodology adopted by this study is a mixed-method approach which includes quantitative and qualitative approaches to serve the research purposes. The methodology consists of five main stages as follows:

1. **Literature review:**
   Review theories and practices related to the research areas namely: disputes, leadership, organisational culture and Saudi construction practice to gain a full understanding of the research background.
2. **Survey:**
   To investigate current practices by identifying the most frequent disputes, leadership style and organisation culture of the OPC in SA.
3. **Semi-structured interviews:**
   To explore in depth the best practices to identify the key characteristics of the investigated factors to minimize disputes.
4. **Framework development:**
   To develop a reliable framework to assess leaders and organisations to minimize disputes.
5. **Framework validation:**
   To validate the developed framework in terms of practicality and effectiveness and to obtain a feedback from academics and practitioners.

1.8. Thesis structure

The thesis structure follows logical steps, establishing the research questions and objectives, developing the adopted methodology, presenting the data collection methods, analysing data and developing the study's framework. The thesis is organised into eleven chapters. The layout of the thesis is shown in Table 1.1. A brief overview of the content of every chapter is presented below:

Chapter 1: Introduces the main topic of the study, highlighting the research problem, the research questions and objectives, the theory of the study, the adopted methodology and the thesis structure.

Chapter 2: Presents a comprehensive literature review and a critical discussion on the topic of disputes in the construction industry by critically discussing the various factors associated with dispute causes and roots, the reported effects on people and organisations, the effects on owner-contractor relationships and processes and techniques to avoid disputes.

Chapter 3: Presents a comprehensive literature review and a critical discussion on leadership theories and practices in the construction industry, including common leadership styles and leadership instruments and a justification of leadership theory and its instrument for the current study.

Chapter 4: Presents a comprehensive literature review and critical discussion on the theories and practices of organisational culture found in the construction industry, including the main characteristics, dimensions, instruments and a justification of the adopted theory of organisational culture and its instrument for the current study.

Chapter 5: Explores the practices of the Saudi construction industry by highlighting the challenges, economic situation, opportunities, culture and contracting practices and relationships.

Chapter 6: Describes in detail the methodology employed in this study, including the research philosophy, the research design, the stages of data collection and analysis and the justification for adopting this methodology.

Chapter 7: Presents the quantitative stage, in which the survey results concerning current practice are described and analysed by identifying the most frequent types of disputes and the profiles of leadership style and organisational culture, along with the correlations between the research factors.

Chapter 8: Presents the qualitative stage, in which the results of the conducted interviews concerning best practice are described and analysed by identifying the key characteristics, common qualities and values, suggested processes and strategies delivered by the interviewed experts.

Chapter 9: Presents the findings from the previous chapters and combine them together to find the main correlations to be combined in one framework

Chapter 10: Presents the development of the framework by combining the findings provided by the quantitative and qualitative stages and outlining the validation process.

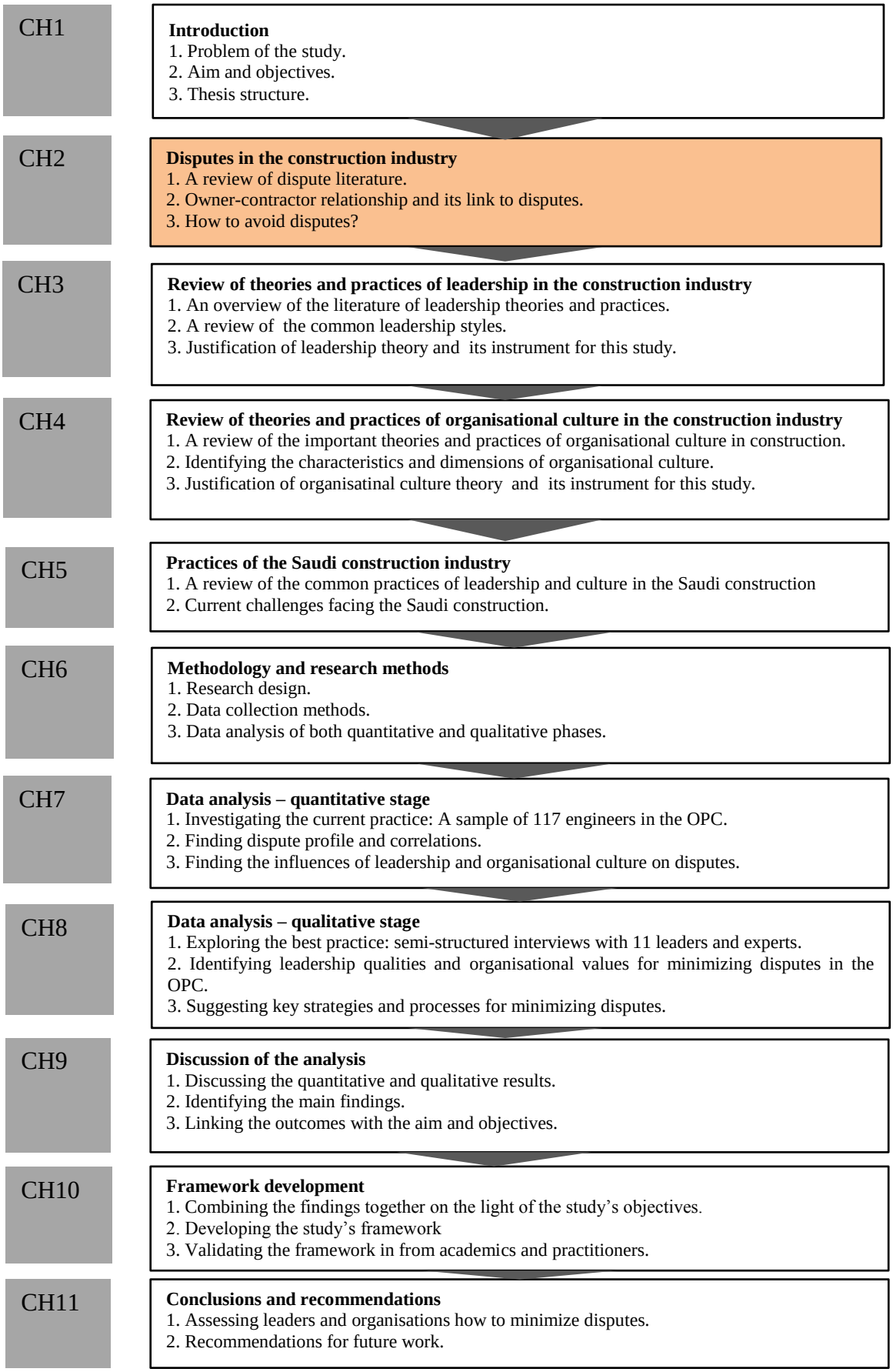
Chapter 11: Summarises the outcomes and the major findings and highlights the contribution to knowledge, future research and the limitations of the study.

Table 1.1: Thesis structure layout.

Chapter	Content
Chapter 1	Introduction 1. Problem of the current research 2. Aim and objectives 3. Structure of the thesis
Chapter 2	Disputes in construction industry 1. A review of roots and causes of disputes in construction 2. Owners-contractor relationship and disputes 3. How to avoid disputes?
Chapter 3	Review of theories and practices of leadership in the construction industry 1. An overview of the literature of leadership theories 2. A review of the common leadership styles 3. Justification of leadership theory and its instrument for the current study
Chapter 4	Review of theories and practices of organisational cultural in the construction industry 1. A review of practices of organisational culture. 2. Identify characteristics and dimensions of organisational culture.` 3. Justification of organisational culture theory and its instrument for the current study.
Chapter 5	Practices of the Saudi construction industry 1. Current challenges facing construction. 2. Practices of leadership and culture.
Chapter 6	Methodology and research methods 1. Research design. 2. Data collection method. 3. Data analysis of both quantitative and qualitative phases.
Chapter 7	Data analysis – quantitative stage 1. To investigate the current practice: Sample of 117 engineers in the OPC. 2. Dispute profile and correlations. 3. Correlations of leadership and organisational culture with dispute.
Chapter 8	Data analysis – qualitative stage 1. To investigate the best practice: semi-structured interviews with 11 experts. 1. Identifying key qualities and values for minimizing disputes. 2. Finding key strategies and processes for minimizing disputes.
Chapter 9	Discussions of the main findings 1. Dispute findings 2. Findings of Leadership 3. Findings of organisational culture.

Chapter10	Discussions and framework development 1. Combining the various parts to construct the final framework. 2. Validation of the framework.
Chapter 11	Conclusions and recommendations 1. Assessing leaders and organisations how to minimize disputes. 2. Future work and research limitations.

2 Chapter two - Disputes in the construction industry



2.1. Introduction

Disputes and conflicts in construction projects are considered as unpleasant events that occur in various stages of a project's lifecycle and have negative effects on cost, performance and completion. The emergence of disputes during project process has its basic from the fact that "*conflicts are inherent in construction projects*" (Zack, 1995). Disputes and conflicts may divert valuable resources from the overall aim, which is completion on time, within budget and to the quality specified (Fenn, 2007). In addition, they generally cost money and take time; they may ruin relationships which may have taken years to develop. In brief "there are no winners under these circumstances" (Ashworth, 2006).

In construction industry, disputes are considered as merit and are associated with nearly every project. In many cases they result in failures and relationship destructions. Public construction, in specific, has a feature that it includes the majority of construction projects in the whole country that are supported mainly by the government. Due to mega size and increasing number of projects implemented in this sector, more complexity accompanies the project process. Therefore, uncounted problems have emerged as a result of the prevailed adversarial culture (Ashworth and Hogg, 2007).

Reviewing dispute literature reveals that the vast body of dispute research has dealt with identifying the causes of disputes and Alternative Dispute Resolution (ADR), without dealing with the factors affecting the roots behind the occurrence of disputes; this results in similar and common causes of disputes. A number of researchers noted that research dealt with identifying causes of dispute may reach to a "*saturation point*" (Love *et al.*, 2009, Diekmann and Nelson, 1985; Kumaraswamy, 1997; Cheung and Yiu, 2006). Accordingly, calls were launched to explore other areas in dispute research to bring better understanding and thus effective solutions to the dilemma of 'disputation'. Rather than focusing on frequent causes of disputes, the roots and latent causes should be investigated that if eliminated or removed, disputes can be controlled.

This study, therefore, attempts to draw attention to the influences of cultural factors on the occurrence of disputes. Thus, the main focus of this thesis is on 'dispute avoidance' concept rather than 'dispute resolution'. This is proposed as a pro-active measure by understanding how the three important constructs: 'dispute', 'leadership styles' and 'organisational culture' are correlated and what are the best leadership style and the preferred organisational culture that if employed can work towards minimizing disputes. The study also investigates the processes and strategies to avoid conflicts before they transform into bigger potentially harmful disputes, thereby avoiding disputes to incur huge potential costs to the organisations. Literature related to leadership styles, organisational culture and influences on dispute are discussed in-depth in the following chapters. The following sections focus on disputes and issues related to this construct.

2.2. Dispute Nature

As mentioned in the last section that disputes is deeply rooted in the nature of construction industry. Conceptually, it can be referred to construction industry as a 'project-based' context with each project is a special case and differs from other projects (Chin ,2003). In other words, every project has a group of parties that work together and every party belongs to an organisation that has its own organisational culture, ethics, values and attitudes toward projects. This industry is also described as adversarial and problematic context where conflicts and disputes are "*the rule rather than the exception*" (Steen, 2002; Ashworth and Hogg, 2007). Beside, construction industry is associated with risks and notable increase in uncertainties (Ashworth and Hogg, 2007; Chin 2003), fragmentation, short-term operation (Chan and Chan, 2004).

Public construction is affected by the local culture and the surrounding circumstances. In developing countries, this sector is described as low standard coupled with weak and unqualified manpower. Moreover, public works normally cover wide range of projects and infrastructures that are big in size and complicated in nature. Construction players are large in number and different in culture and background. Parties like owners, contractors, consultants and subcontractors have different 'conflict-benefits' toward the

project. In other words owners concern about quality and time while contractors focus on their profits. Accordingly, the sector becomes increasingly fragmented by all means.

Due to this fragmentation and practices, the occurrence of conflicts and disputes is not surprise in any stage of the project's life and the conflict-benefits of the parties raise the possibility of disputes (Sakal, 2004). In fact Stipanowich (1998) pointed out that emerging disputes in construction projects is fundamentally linked to the nature of environments these disputes generated from. He linked disputes to the complexity of projects, multiplicity of people and departments and risks associated in projects; the construction industry can strongly be described as an adversarial environment.

Disputes and conflicts has been a prolific area of research in recent years. Recent research has indicated that there has been a dramatic rise in construction disputes and conflicts across the globe (Yates, 2003). Conflicts and dispute have become part of human organisations in every business (Okotuni and Okotuni, 2003) and having them in construction industry is not a deviation from the norm, although in terms of costs, it may have some of the highest costs across industries. Interactions of people working together can make a kind of misunderstanding or conflict toward the project's outcomes which may escalate to emergence of dispute.

Conflicts and disputes can work against successful completion of construction projects and fulfilling their project related goals. Time completion is one of the most important goals of any construction organisation in every context. Time overrun was identified as a problem associated with significant increase in costs for the projects. The main goal for any party involved in any project, including construction projects, is to complete the project successfully. Harmon (2003) defined successful completion as "*a project that has been constructed in accordance with the plans and specifications, within the time and cost originally anticipated*". Unsuccessful projects can be distinguished from successful ones in many various ways such as time or cost overrun, significant financial loss of profit, and in the worst case scenario the total abandonment of the project. The occurrence of a dispute can causes some or all of these above mentioned implications.

The success or failure of a project, therefore, depends to a large extent on 'how the organisations approach problems and conflicts' and eventually disputes.

2.3. Disputes, Conflicts and Claims: Definitions of terms

By introducing the terms of dispute, conflict and claim in this study, it is important to make an elaboration on their definitions and meanings. Researchers have used the terms disputes and conflicts interchangeably and many have argued otherwise. Love *et al.* (2007) suggests that any definition must at least take into consideration the context in which the terms are used i.e. academic, legal or industry usage. Below are definitions of the terms conflicts, disputes and claims. It is attempted through the discussion to clarify some of the confusions regarding the use of these terms and understand their meanings.

2.3.1. Conflicts

According to CRC (2007) the concept of conflict is central to literature regarding disputes and their resolution. Conflict has been defined as "*serious disagreement and argument about something important*" and also as "*a serious difference between two or more beliefs, ideas or interests*" (Collins, 1995; as cited in Kumaraswamy, 1997). It is further stated that the existence of conflicts in environments where human relations proliferate is more predictable, such as the construction industry. The possibility of conflicts increases if more layers are added to the system such as joint ventures and sub-contractors (Kumaraswamy, 1997). However, the presence of a conflict is not always considered as negative; in fact according to Rosenhead (2006) as cited in Love *et al.* (2008), a conflict free environment is unattainable and even undesirable. In other words, lower levels of conflicts in construction projects can improve satisfaction regarding a particular situation and create constructive discussions which ultimately influence the project process as a whole (Gardener and Simmons, 1995; Loosemore, 1994). There are some disagreements in the differences between conflicts and disputes, conflicts are considered often to be the prime driver of disputes (Chan, 2008). Yet the difference between conflicts and disputes are not clearly understood.

2.3.2. Disputes

Fenn *et al*. (1997) suggested that conflicts and disputes are two distinct notions. This is opposed to some other commentators who have not differentiated between the two. They further observed that some authors have used the terms interchangeably and rather loosely. As Reid and Ellis (2007) worthily found that "*there is no definitive meaning of dispute*" and this could be the cause of the confusion regarding the lack of unified definition and therefore a gap in the needed understanding. They further noted that "the existence of a dispute in construction adjudication is a subjective issue" and suggested that it is an issue that requires "*a practical common-sense approach relying on the facts, the law and policy considerations*". According to Kumaraswamy (1997), a definition of disputes itself is 'in dispute', however, there are two major views that are taken in order to form a definition of disputes. Reid and Ellis (2007) referred to the outcome of *Halki Shipping Corporation* as authority for definition of a dispute in relation to arbitration when reviewing the cases from the court of appeal. This was based on the adjudication in the case of *Halki Shipping Corporation* verses *Sopex Oils Ltd* (as cited in Reid and Ellis, 2007). First of all they highlight that the presence of a dispute is necessary before arbitration proceedings can begin, adding that a lack of dispute would render the adjudicators without jurisdiction to decide on matters referred. As per the '*Halki* Principle' a dispute is defined as "*There is dispute once money is claimed unless and until the defendants admit that the sum is due and payable*".

The alternative to that is based on the fundamental requirement of natural justice which provides that every part of a dispute must be given a fair opportunity to present its case and to answer the case of its opponent (Reid and Ellis, 2007). Based on this, a dispute is constituted as follows, "*there must both be a claim and a rejection of it in order to constitute a dispute*". The authors here have suggested a common sense application of the *Halki* test and have defined disputes from a legal stand point of view. In general, a dispute can be described as a disagreement that requires resolution (Brown and Marriott, 1999). The existence of a dispute in construction adjudication is a subjective issue requiring a practical common-sense approach relying on the facts, the law and policy considerations. A direct and simple definition to dispute was addressed by

Diekmann and Girard (1995), they defined it as "*any contract question or controversy that must be settled beyond the jobsite management*". This definition compared to the previous attempts seemed to be more related to the nature of construction projects where the conflicts take place between teams and individuals. Fenn *et al*. (1997) indicated that dispute resolution includes binding and non-binding processes while conflict management involves non-binding processes, Figure 2.1. This is to understand that dispute is associated with more serious resolutions like adjudication and arbitration while conflicts may be managed inside the organisation.

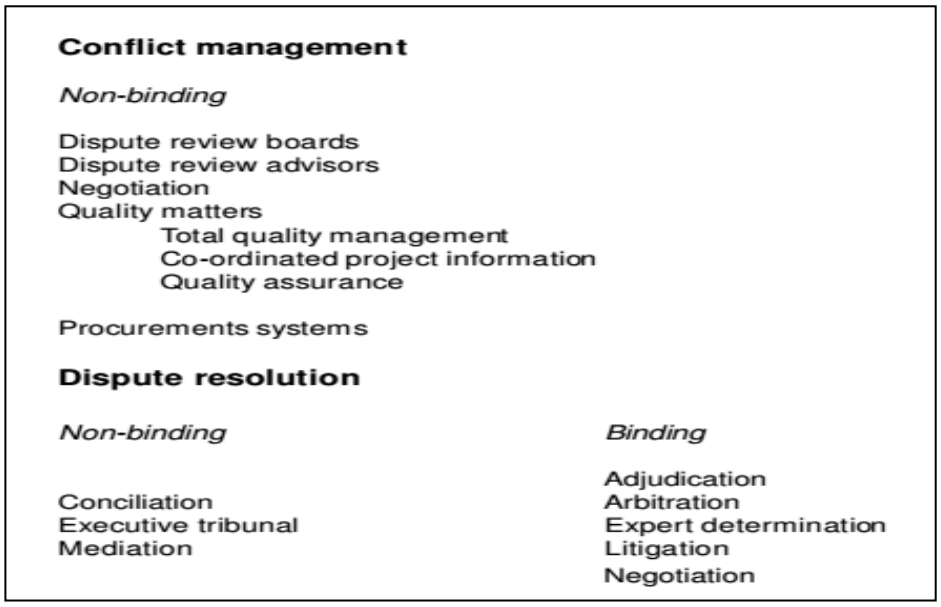


Figure 2.1: Taxonomy of dispute and conflicts, (Fenn *et al.*, 1997).

Reid and Ellis (2007) further reported that there can be additional meaning of the concept of dispute, and perhaps Kumaraswamy (1997)'s assertion that a unified definition of dispute is itself in dispute might perhaps be a reflection of the existing reality pervading the construction industry. According to Reid and Ellis (2007), the other meanings or levels applied to the understanding of disputes are related to claims of money that the other party refuses to pay or denies what owes.

In this study, the concept of dispute is pivotal and therefore it was decided to adopt the definition of Diekmann and Girard (1995) that a dispute can be defined as "*any contract question or controversy that must be settled beyond the jobsite management*". The

reason behind that is its directness and simplicity to be understood among the survey's respondents and interviewees. Added to this, the current study is not related directly to the legal issues and ADR found frequently in dispute literature. It discusses the roots of disputes and the link of dispute causation to other influential factors.

2.3.3. Claims

Semple *et al.* (1994) uses a definition of a claim as "*an assertion of the right to remedy, relief or property*". Kumaraswamy (1997) differentiated between claims as unavoidable/ necessary and avoidable/ unnecessary. Love *et al*. (2008) distinguished between claims as "*claims entitlement*" and a "*claim for breach of contract*", the former being within the contract, which are settled and do not result in dispute and the latter being one in which there is a breach of contract by one or several parties. This second type is the one that gives rise to disputes and is important for a research study on dispute avoidance and/or resolution. A claim in this latter case would be "*a request for compensation for damages incurred by any party to the contract*". A claim explains the contractual and legal basis for payment (entitlement), and quantifies the resulting damages" (Semple *et al.*,1994 as cited in Love *et al.*, 2007).

The general understanding from these definitions is that for an antagonistic situation to be recognized as a dispute there must be a presence of a claim asserted by a party, and that a dispute must exist as a prerequisite to any claim proceeding. Generally speaking, disputes are taken to imply prolonged disagreements on unsettled claims and protracted unresolved/destructive conflict (Kumaraswamy, 1997). Figure 2.2, below, shows the relationships between conflicts, claims and disputes in a construction industry scenario. According to Figure 2.2, it can be stated that disputes may arise as a direct result of existing conflict(s). Alternatively, it may arise from a claim settlement request from one of the parties involved in the contract and a subsequent rejection of it by the defendant may lead to a dispute. Claims can also originate from external parties such as the ultimate end user; however, those are not part of the scope of this study and will not be considered here. Similarly, not all conflicts will result in disputes as some conflicts may

be arising out of disagreements regarding design, implementation of design etc. and may be resolved by an internal process and perhaps because of the maturity and professionalism of the parties, what Kumaraswamy (1997) has described as avoidable or unnecessary.

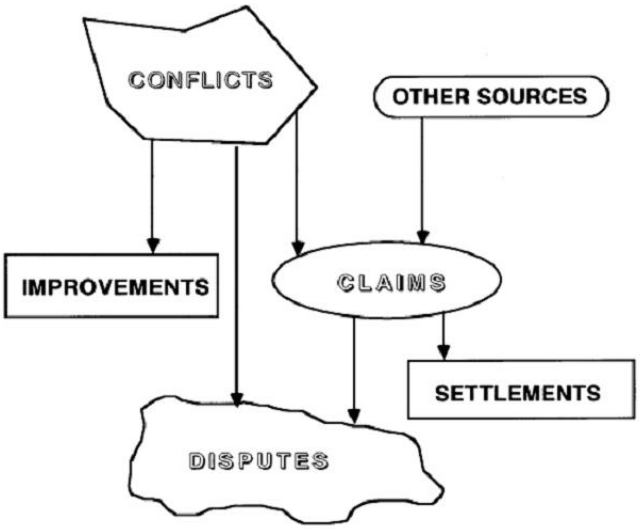


Figure 2.2: Basic relationships between conflicts, claims and disputes and potential outcomes, (Kumaraswamy, 1997).

2.4. Impacts of disputes on construction projects

Disputes have unlimited impacts to all of the organisations working in construction industries whether these organisations were, owners, contractors, consultants, subcontractors or coordinators. These impacts can be in-equitability of project delivery, cost overrun or bad quality of projects. Substantially, disputes can destroy the relationships between key parties like owner-contractor relationships. These relationships took long time and huge efforts to be build and destroying them can harm projects and will need extra efforts to rebuild. According to Steen (2002), the construction industry is known as the most adversarial and problem prone, with disputes becoming the rule rather than exception. Recent research has indicated that there has

been a dramatic increase in disputes and conflicts, particularly in construction industries across the globe (Yates, 2003).

In fact cases of disputes brought to courts are in dramatic increase, "*The London Official Referees*" Courts deal with all High Court and some smaller construction cases arising in London and the South East and with many High Court cases arising elsewhere in England and Wales. Between 1973 and 1980 "*there was about 100% increase in the number of cases brought to the courts and in most years after that until 1989 there was an increase of about 15%."* (Fenn and Gameson, 2003). Similarly, in the Unites States, the American Arbitration Association warns construction organisations about the seriousness of disputes taken place in construction projects, they reported that "*During the past 50 years much of the United States construction environment has been degraded from one of a positive relationship between all members of the project team to a contest consumed in fault finding and defensiveness which results in litigation. The industry has become extremely adversarial and we are paying the price…. a positive alliance of the parties (involved in the construction process) constitutes an indispensable link to a successful project; disputes will continue as long as people fail to trust one another*" (AAA, 1996).

Similar to the arising court cases in the UK and USA, the Saudi courts had also dramatic increase in dispute cases. Al-Reshed (2002) investigated cases brought to the grievances courts to find how long the cases take to be resolved. He found that about 92% of the dispute cases took more than one year reaching to eight years. Therefore litigation of dispute cases had duration from one to eight years to be resolved. The wasted time leaded to more cost spent by parties to pay the dispute litigation.

The financial implications of disputes in construction industry become an issue of wide range of research. In a recent report "Global Construction Disputes: Moving in the Right Direction" (2012), Mike Allen, the Group Head of EC Harris Contract Solutions, asserted that construction is intrinsically tied to the overall health of the world's economy and at the same time he observed that a number of construction schemes are embroiled in disputes that cost a huge amount of money. Not only that the costs pertaining to dispute management are high, but they also have other effects such as they tie up key personnel for significant periods of time (Allen, 2012). It is not surprising

then that conflict management and dispute resolution has been an important matter of consideration and debate within all segments of the industry i.e. analysts, providers of legal services, advisers and consultants as well as academics involved in research.

In a study of the Australian construction industry, Blake (2006) found that cost and schedule overruns were the two most significant contributing factors to disputes. Moreover, in the United States, a cost of US$5 billion was spent yearly on dispute litigation and it was expected of 10% increase yearly (Michel, 1998). In this regard, disputes expected to add more cost to the Australian industry from, $2.73 to $27 billion in 2008 and 2009 (Love *et al.,* 2008). This is considered as an indication of serious effects on this industry and all efforts should be brought together to find effective solutions.

Developing countries, on the other hand, have been affected by increasing incidents of disputes. Middle East as a region has continued to experience the highest level of disputes cost compared to UK, Europe, Asia and US as shown in Table 2.1.The data of the Middle East indicates that the value of disputes reached $112.5 million in 2011 and disputes take 9 months in average. In another study conducted in 2012, the total value of costs attributed to disputes was estimated to be £41.8 million while it was £17.7 million and £5.8 million in the UK and USA respectively; the disputes in the US being of the lowest value (Plimmer, 2013). She further reported that the costs may even be higher as many cases were not even making it to the court because of the high costs involved. Not only that the amount of disputes has increased but the time taken to resolve these disputes has increased as well. The table below presents a broad summary of the cost of disputes and the time taken for resolution.

Although data of disputes in the Saudi construction is not available in the current research, data of the Middle East (Allen, 2012) can help figuring out, broadly, the situation in SA. SA is part of the Middle East and therefore shares various similarities and feature of the other countries in this region. In fact SA is one of the leading players of the construction industry in the Middle East. Consequently the highest value of disputes compared to the above mentioned countries reflects also high value in the

Saudi construction sector. The rising cost of disputes in this context requires an intensive research to find the main roots behind of the increased number of disputes.

Table 2.1: Standing of Global Construction Disputes Data 2011, (Allen, 2012)

Region	Dispute Value (US $ millions)		Length of Dispute (Months)	
	2011	2010	2011	2010
UK	10.2	7.5	8.7	6.75
Europe	35.1	33.3	11.7	10
Middle East	112.5	56.25	9	8.25
Asia	53.1	64.5	12.4	11.1
US	10.5	64.5	14.4	11.4
Global Average	**32.2**	**35.1**	**10.6**	**9.1**

2.5. Dispute causation

It has been established in the previous sections above that the cost of disputes are significant and this research aims to address this issue by proposing a reliable framework that will help to minimize disputes in public construction. To be able to do that it is important to understand the roots or causes of disputes. This section discusses the key literature that explores the reasons for disputes.

It is notable that the vast majority of dispute research is related to two areas: dispute resolution and causes of disputes. As a result, the research outcomes are similar and it can be said that dispute causes research reach "*saturation point*" (Love *et al*., 2009; Diekmann and Nelson, 1985; Kumaraswamy, 1997; Cheung and Yiu, 2006). However, the factors behind the occurrence of disputes and surrounding circumstances are not deeply investigated. The approach of this study is believed to draw attentions to important factors affecting disputes. In the coming sections roots and causes of disputes are differentiated and presented in details.

2.5.1. Main roots of disputes

Very few studies have undergone investigations to the roots of disputes. In fact the CRC (2007) mentioned that most of dispute studies took pragmatic approaches in determining causes and sources of disputes and accordingly they suffered from theoretical grounding. To advice effective research in disputes CRC report stated what should be achieved as "*... tending towards a diagnostic approach to dispute causes – i.e. deeper underlying structural, behavioural and cultural characteristics which pervade the industry, relationships between firms and project environments rather than the immediate proximate or apparent symptom at the core of a dispute which has resulted in litigation or undergone some form of a dispute resolution process. Root causes can also been viewed as factors influencing dispute resolution and avoidance."*

One of the most important works in literature is the research of Kumaraswamy conducted in 1997. He differentiated between root and proximate causes of disputes. Root causes was defined as "*the underlying reason of the problem and if eliminated, would prevent recurrence*" while proximate causes as (immediately precedes and produces the effect). Examples of the main roots of disputes in the study are: unclear risk allocation, adversarial culture, inappropriate contract type and lack of professionalism, Figure 2.3. Proximate causes include poor communications, incomplete tender information, slow client response. The kumaraswamy's study was criticized that it did not investigate deeply the root causes and reasons behind occurrence, rather the author noted that these causes can be controlled (CRC, 2007). Nevertheless, Kumaraswamy's work is deemed to be of significant in guiding dispute research to the underlying roots of disputes.

Diekman *et al.* (1994) defined three factors of the roots of disputes namely people, process and product. Product factor is revealed in the nature of construction projects and uncertainty which sometimes cause changes and disorders. Process factor involves contractual issues like lack of information which produces poor performance. People factor is related to lack of skills and qualifications among individuals working in one project. Love *et al.* (2008) commented on the factors of Diekman et al. (People, process and product) that organisational management practices, behaviours of people and

project management strategy have significant impact on dispute occurrences Figure 2.4. This view is rational since management practices of leaders and managers reflect their beliefs and values which can influence disputes either positively or negatively. The view argued that only considering the contract as central to addressing disputes is inappropriate.

The figure also reproduces this understanding by first of all suggesting that the issue of dispute causation is a complex one and that it cannot be understood by simply listing the 'pathogens' and finding a cure for it without first understanding the organisational context that leads to latent causes to become active and leading to disputes.

Busby and Hughes (2004) introduced an interpretation of dispute roots through what they called 'pathogens' and described as stated by Love *et al.* (2008) as "*stable phenomena that have been in existence for a substantial time before the error occurs; before the error occurs, they would not have been seen as obvious stages in an identifiable sequence failure; and they are strongly connected to the error, and are identifiable as principal causes of the error once it occurred*".

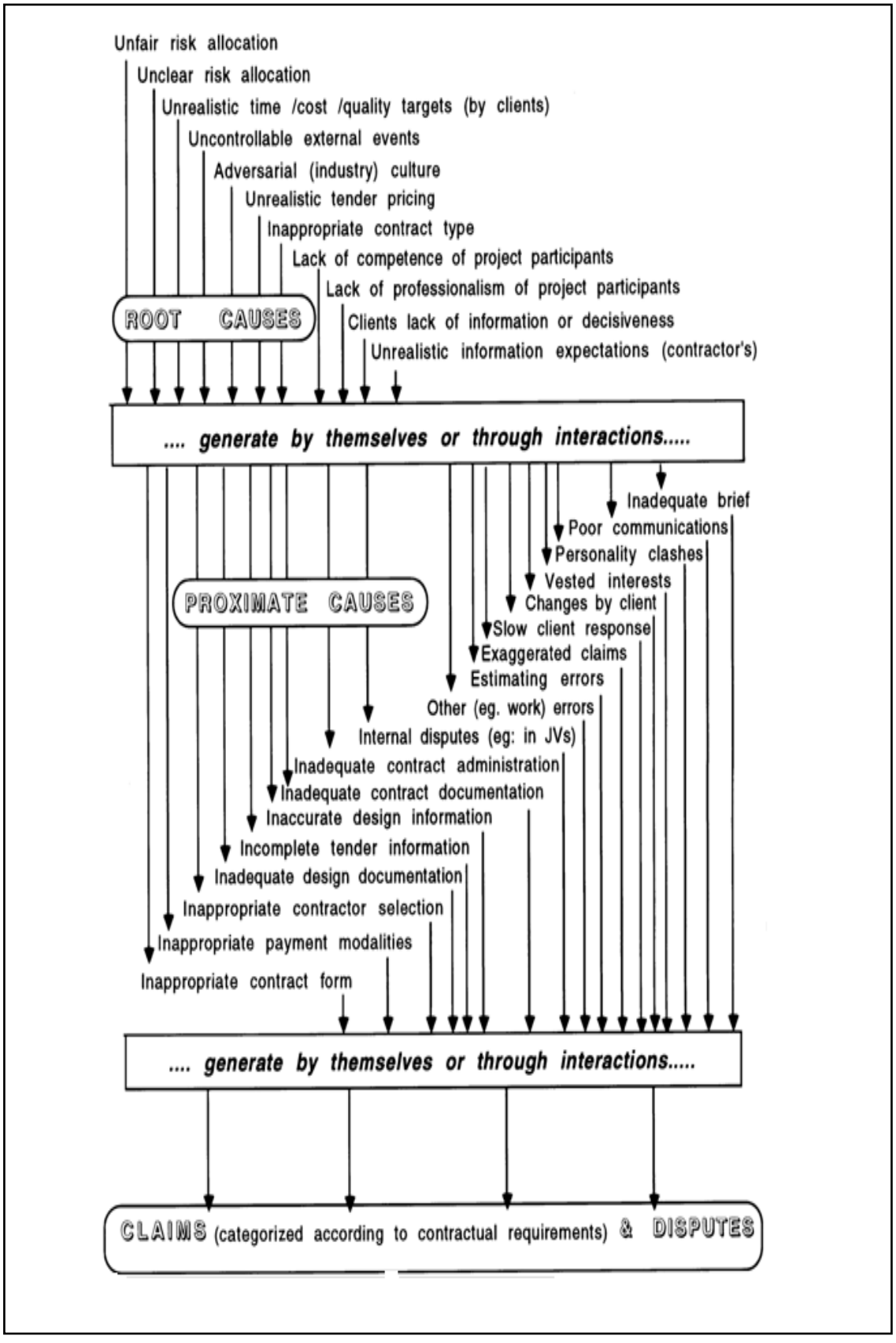


Figure 2.3: The root and proximate causes of claims and disputes, (Kumaraswamy, 1997).

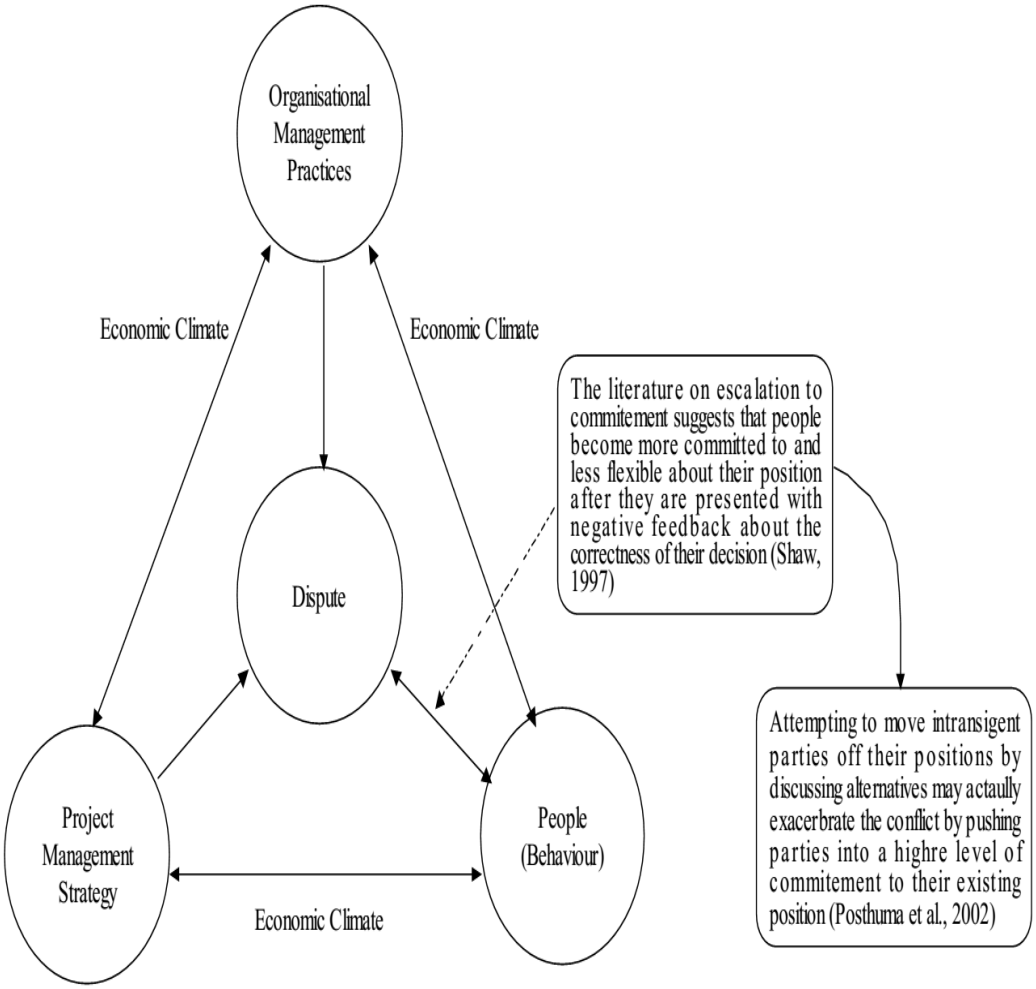


Figure 2.4: Factors influencing disputes, (Love *et al.*, 2008).

Pathogens were categorized to seven factors namely practice, task, circumstance, organisation, system, industry and tool. In studying these concepts of pathogens, Love *et al.*(2008) conducted investigations through two focus groups with a public construction namely, a client organisation and a contractor organisation. Opinions of both parties regarding disputes were different. The client employees reported factors like poor workmanship, opportunistic behaviours of contractor, incomplete documents, poor planning, lack of resources with contractors and consultants. In contrast, the employees of the main contractor focused on environmental circumstances like unforeseen scope as the main factor for emerging disputes. Both client and contractor agreed on the high cost of disputes.

In this regard, Acharya *et al.* (2006) conducted a study to find the roots of conflicts in the Korean construction industry. Out of 22 conflicting causes, the authors grouped the causes into four root factors of conflicts. These factors are: weak project leadership, weak contractor selection, weak project management and professional attitudes, Figure 2.5. This study revealed that for construction organisations to reduce conflicts they should have effective leadership in the first place then selecting capable contractor has a notable influence.

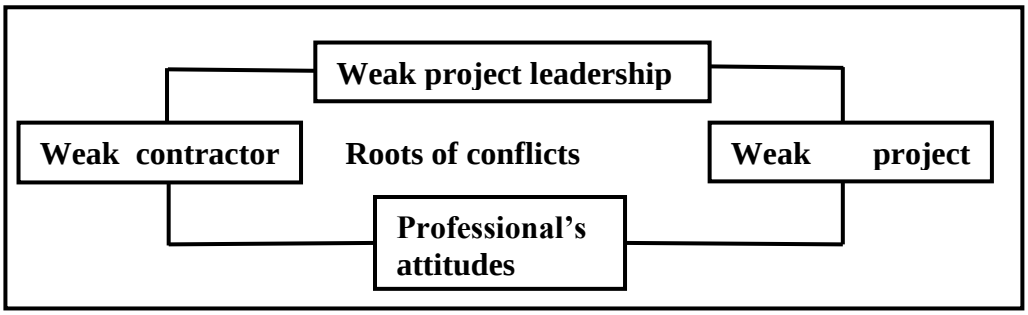


Figure 2.5: Roots model of construction conflict, (Acharya *et al.*, 2006).

2.5.2. Causes of disputes

As mentioned in the last section, studies relating to the main roots of disputes were mentioned. In this section an overview of the literature of dispute causes is presented to tackle the development of dispute identification. Dispute causes in construction projects have been widely researched throughout the world, especially with emerging international projects. Delays, in most cases, are accompanied with disputes, failures and ineffective performance. Disputes are associated with delays which cause undesired implications on the projects and on the parties involved (Tsai and Chi, 2003). Arditi *et al.* (1985) conducted a study on the reasons of delays in publicly funded construction projects for the period 1970-1980 in Turkey. They identified 23 reasons for construction delays concluding that the major causes of delays were: shortage of materials, difficulty in receiving payments from agencies, contractor's difficulties, organisational characteristics of contracting companies and public agencies. However, Mansfield *et al.* (1994) argued that most of the problems were human and management problems, not

technical in nature. The list of major factors included finance and payment arrangements, poor contract management, materials shortage, inaccurate estimation and overall price fluctuations.

Similarly, Noulmanee *et al.* (1999) remarked that delays can be caused by all parties in a highway construction project. However, causes come from inadequacy of sub-contractors, organisation that lacks of sufficient resources, incomplete and unclear drawings and communication deficiencies between consultants and contractors. They suggested that delays can be minimized by discussions that lead to understanding. Chan and Kumaraswamy (1997) also cited five principal factors for disputes related with delay: poor risk management and supervision, unforeseen site conditions, slow decision making, client-initiated variations, and work variations. Table 2.2 shows a summary of some common causes of construction disputes and conflicts mentioned in dispute literature.

Accurate contract documentation is an important issue in avoiding disputes. Several attempts have been made by researchers to minimize disputes through choosing the proper contract procurement approach. Jannadi *et al.* (2000) proposed techniques that can be incorporated in preparing construction contracts for dispute avoidance including: fair allocation of contract risks, drafting dispute clauses, team building, and provision of a neutral arbitrator and binding arbitration. In addition, contractual factors have been recognised as causes of disputes and if not treated effectively may cause disagreements among project parties (Mitropulos and Howell, 2001; Bristow and Vasilopoulos, 1995; Smith, 1996; Conlin *et al*., 1996).

The research of dispute causes cover countries around the globe. Some of these countries mentioned in Table 2.3 like USA, UK, China, Saudi Arabia, Nigeria, Canada, Thailand, Indonesia, Korea, Malaysia, Jordan, UAE and Turkey. Although the circumstances for each construction environment are different in one country than others, dispute causes remain similar in many regards. The main categories of dispute causes mentioned in these studies can be summarized in the following areas:

1. Management and leadership problems.
2. Contractual problems, mainly poor documentation during contract administration.
3. The influence of culture on contract parties.
4. Unqualified and inexperienced manpower.
5. Late payments and financial issues.
6. Changes and modifications.
7. Unrealistic expectations.

Table 2.2: A summary of the common causes in the literature of disputes and conflicts in construction projects.

Researcher ,Year and Location	**Findings**
Arditi *et al.* (1985) Turkey	Investigated the reasons for delays in publicly funded construction projects for the period 1970-1980 in Turkey. They identified 23 reasons for the construction delays. Their findings concluded that the delays were due to: shortage of materials, difficulty in receiving payments from agencies, contractor's difficulties, organisational characteristics of contracting companies and public agencies
Fern (1991) Australia	Identified 10 main causes of cost overruns. Among them are design errors, manufacturing errors, variations, delays and discontinuity.
Mansfield *et al.* (1994) Nigeria	Identified the causes of delays and cost overrun problems in Nigerian construction projects. Their findings concluded that most of the problems were human and management problems.
Watts and Scrivener (1995) UK and Australia	290 sources from 65 projects in both countries have been identified. The most common cause of dispute in the United Kingdom is negligence, while in Australia it is failure and determination.
Conlin *et al*. (1996) UK	Grouped conflict causes into six broad categories. The groupings covered: payment and budget; performance; delay and time; negligence; quality and administration.
Smith (1996) USA	Provided a top ten list of root causes of disputes in the US construction industry as follows: unrealistic contract clauses, unrealistic expectations, ambiguous contract provisions, low bid contractors, poor communications, deficient management, reluctance with changes and unexpected conditions, the absence of team spirit, a predisposition toward adversarial relationships and contract administration.

Chan and Kumaraswamy (1997) Hong Kong	A survey of 83 potential delay factors in Hong Kong construction projects and found five principal factors: poor risk management and supervision, unforeseen site conditions, slow decision making, client-initiated variations and work variations.
Kaming *et al.* (1997) Indonesia	Studied influencing factors on 31 high-rise projects in Indonesia and found that cost overruns are caused mainly by cost increase due to inflation, inaccurate material estimation and degree of complexity.
Noulmanee *et al.* (1999) Thailand	Investigated causes of delays in highway construction in Thailand. Main causes are inadequacy of sub-contractors, organisation that lacks sufficient resources, incomplete and unclear drawings and deficiencies between consultants and contractors.
Daoud and Azzam (1999) Middle East	Studied the sources of dispute in construction contracts in the Middle East. Identified five main sources of dispute in the Middle East as: modifications, lack of understanding, changes in legislation and regulations, poor documentation during contract administration and the influence of local culture on the performance of contract parties.
Lim and Zain Mohamed (1999) Malaysia	Studied recurring construction problems in construction projects in Malaysia and found management problems are the most common.
Mitropolous and Howell (2001) USA	Carried out a comparative analysis of 24 construction disputes which occurred in 14 projects in USA. They produced a model that show the development of disputes and develops a classification of "*problem situation*", based on three elements: project uncertainty, contract, working relations and problem solving effectiveness.
Assaf and Al-Hejji (2005) Saudi Arabia	73 causes of delay were identified. The identified causes were combined into nine groups. Lowest bid was cited as the most frequent factor of delay.
Chan and Suen (2005) China	Studied disputes in Sino-Foreign Joint Venture construction projects in China. Contractual, cultural, and legal matters are suggested as the primary sources of disputes
Zaneldin, (2006) UAE	Conducted research on construction claims in UAE. One of the common problem areas is *"changes"* and *"Extra-work"* type of claims.

Acharya and Dai Lee (2006) Korea	Categorically identified six conflicting factors in construction in Korean construction: Change of site condition, public interruptions, change order evaluation, design errors, Excessive quantity variation, double meaning in specifications.

Hewit (1991) suggested six main categories of claims: change of scope; changed condition; disruption; acceleration; and termination. Daoud and Azzam (1999) examined the sources of disputes in construction contracts in the Middle East pointing to "*the influence of local culture on the performance of the contract parties*". Watts and Scrivener (1995) found that the most common causes of disputes in the United Kingdom are negligence, while in Australia it was failure of contract determination. The effect of interaction between technical, contractual and behavioural factors on the development of disputes was studied by Mitropoulos and Howell (2001). The authors identified three basic factors that directly affect disputes: project uncertainty, contractual problems and opportunistic behaviour. In their study of the Australian construction industry, Blake (2006) found that cost and schedule overruns were the two most significant contributing factors to disputes.

Allen (2012) looks broadly at causes of disputes in the construction industry across the globe and found that there were a number of reasons that were prominent in causing disputes. These are failure to properly administer the contract, ambiguities in the contract document, failure to make interim awards on extensions of time and give associated compensation, incomplete design information or employment requirements and conflicting party interests. These causes, according to the report, have been consistent over the years and although from their assessment the industry may be evolving, these issues continue to create tension and stop projects form moving forward.

It is generally believed that if the causes of disputes are known, project management can be able to determine the most appropriate prevention and resolution strategies. Reid and Ellis (2007) described disputes and conflicts as pathological states which need determination of cause and suggest treatments for their avoidance and prevention. In the

following section, dispute resolution methods are discussed with a focus on how practically organisations can minimize disputes in the light of the current literature.

2.6. Dispute Avoidance and Resolution DAR

By revising the reported effects of disputes on construction projects and the damages to the relationships between all parties, it is important that researchers work a head towards finding effective ways to reduce incidences of disputes. The increased spending on disputes litigation worldwide makes the task on researchers more pressing. Kirk (2003) supported this by insisting that effective and applicable mechanisms are required to identify conflicts in early stages to control disputes and therefore to reduce costs resulted from disputation; that is 'prevention is better than cure'. However, the suggested solutions have to cope with the complex nature and turbulence associated with construction industry.

It is worthily to note here that this study is not concerned with dispute resolution but it focuses on the roots of dispute through studying the influences of leadership and organisational culture on disputes. The main aim of this study was to avoid disputes before occurrence; it is not related to resolving disputes or managing conflicts. That is to suggest proactive measures by proposing a reliable framework that involves strategies and processes to minimize disputes. The reason behind overviewing ADR in this chapter is that the majority of dispute research was devoted for the purpose of finding new processes and techniques to resolve disputes before litigation. That is to reduce the increasing cost and implications of dispute. By acknowledging the techniques of dispute resolution and the improvements in ADR, it is quite beneficial for suggesting a solution for avoiding disputes. Although the two areas are different, i.e. dispute resolution and dispute avoidance, they are related to each other. In the coming sections, dispute resolution methods and dispute avoidance are discussed.

2.6.1. Alternative Dispute Resolution (ADR)

With the beginning of the last century, various academic organisations and institutions suggested different techniques for dispute resolution. Although the formal, binding 'conventional' techniques has been the traditional way of approaching dispute

resolution within the construction industry, the informal, non-binding techniques such as negotiation or mediation are gaining ground. According to Gould (2003), these techniques, also called the Alternative Dispute Resolution (ADR) have gained prominence in academic research since the 1990s and the ADR debate has been joined by not only academics but also lawyers, consultants and practitioners.

ADR is defined as "*any method by which conflicts and disputes are resolved privately and other than through litigation in the public courts*" (Kovach, 2004). ADR involves binding and non-binding methods and as Finn (1997) mentioned this categorization can be used to 'manage' conflicts or 'resolve' disputes. The involved parties in the incident of a dispute chose preferably the best technique to resolve. Through years experts have suggested specific methods to resolve disputes like negotiation, mediation, conciliation, neutral evaluation, expert determination, adjudication and arbitration (Cheung *et al.*, 2000; Kellog, 1999; Vorster, 1993).

Though ADR techniques are generally taken to represent a system that provides an alternative to the court system, it is usually taken to describe the use of a neutral third party mediator who either facilitates or evaluates the situation and helps to arrive at a "*voluntary, consensual, negotiated settlement*" (Gould, 2003). ADR has become a widely common dispute resolution technique within the construction industry. As reported by Brown (1993), the executives responsible for company legal services believed that ADR offered far more advantages than disadvantages citing that 75% of the respondents considering this as positive as compared to only 6% as negative. Some of the advantages and disadvantages that are highlighted by Gould (2003) are illustrated in Table 2.3 below.

Table 2.3: Advantages and disadvantages of ADR, (Gould, 2003).

Alternative Dispute Resolution (APR)	
Advantages	**Disadvantages**
- Speed - Lower Cost - Confidentiality - Flexibility - Greater Satisfaction	- Disclosing all issues - Pressure to settle - Indication of weakness or liability

ADR is now a commonly used technique and it is employed either as a standalone or as a hybrid or multi-stage process such as "Med-Arb", in which the first stage is Mediation and if the parties fail to reach a settlement then they enter into an adjudication or arbitration process to get a binding resolution.

The above discussion is best summarized through Figure 2.6 proposed by Moore (1989) in which he described all the possible approaches or techniques for dispute resolution. Moore (1989) suggested a conflict continuum that includes a range of possible processes to range from conflict avoidance to binding procedures. In essence the author proposed that the continuum ranges from conflict management to dispute resolution in which they suggest the stages as conflict avoidance, informal discussion, negotiating ADR, arbitration or litigation and finally other action.

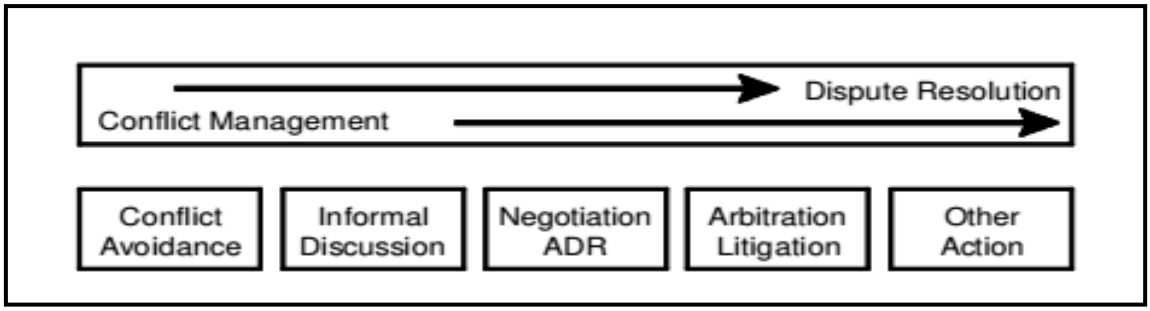


Figure 2.6: Conflict Continuum, (Moore, 1989).

2.6.1.1 Negotiation

Negotiation is one of the popular resolution methods. Most of dispute parties prefer to use negotiation to resolve disputes. According to Gould (2003), negotiation is a process of working out an agreement by direct communication and it is voluntary and non-binding. However other researchers like Finn saw this method as binding since some parties sign a contract at the end of negotiation. Negotiation can be implemented between parties themselves or by introduction of advisers. Normally, this process does not take formal system; it can take direct discussion between parties. This process however needs that all parties to have the willingness to understand the situation of each other party and to accept the resolution (Fenn *et al*. 1997).

2.6.1.1. Mediation

When each party appoints neutral third party for the purposes of settlement, the process is then called 'Mediation' which is "*a private, informal process in which parties are assisted by one or more neutral third parties in their efforts towards settlement*" (Gould, 2003). Mediation is usually chosen by parties when negotiation failed and it is important step for resolving disputes before escalating to binding processes. However, he further explains that the final decision of the outcome remains with the parties and not with the mediators. Mediation or conciliation is further understood as 'facilitative' and 'evaluative'. Table 2.4 below explains the difference between the two concepts. It is shown that the mediator in facilitative works through aiding tasks without suggesting any recommendation while evaluative goes further than aiding to make suggestions. For this reason most organisations prefer evaluative mediators.

Table 2.4: Facilitative and evaluative processes, (Gould, 2003).

Mediation or Conciliation	
Facilitative	***Evaluative***
The mediator/conciliator aids the negotiation process, but does not make recommendations.	The mediator/conciliator makes a recommendation as to the outcome.

Mediation is used in many industries other than construction due to its simplicity and wide acceptance. This technique is used more in public sector and local governments especially with issues dealt with public.

2.6.1.3. Arbitration

According to Gould (2003), arbitration has been the traditional method for dispute resolution in the construction industry. He suggested three core processes of dispute resolution: conventional model through the courts, mediation and negotiating process between parties. The conventional model: According to Schapiro (1981) cited by Gould

(2003) " *is one in which there is an independent judge who applies pre-existing legal norms to solve a case in which one of the parties is assigned the legal right and the other found wrong*."

Schapiro (1981) laid the processes of dispute resolution on a spectrum and attributed them as 'binding' and 'non-binding' or formal and informal as the extreme ends. The conventional mode, he says is at the formal biding end of the spectrum and suggests that there is an informal non-binding approach in which parties sit together for problem solving and the outcome being an agreement to 'settle'. The main difference between the formal, legal process and the party based negotiation method is that the control of the outcome remains with the hands of the parties. The formal processes involve litigation and arbitration and the outcome imposed is legally binding

2.6.1.4. Expert Determination

Expert determination is a process in which each party presents an argument to a third party and the decision with the hands of the third party. The expert investigates all of the presented arguments and builds his judgments based on facts not in personnel opinion. Also he can meet each party and seek information to assess the situation and to seek effectiveness in this job, he must be purely neutral. The personality of the independent expert and his qualification in dispute resolution is a key point in this process. Expert determination is binding process and can be reached after communications between parties failed.

The above discussion regarding the processes of dispute resolution has helped to understand the spectrum, the two end of which as described as formal or binding which entails decisions that are imposed are legally binding and informal or non-binding in which a settlement is reached after negotiations or mediation between the two parties involved in the dispute. Gould has captured this distinction as shown below in Table 2.5.

Table 2.5: Settlements and decisions, (Gould, 2003).

Control of the outcome rests with the parties	**Decisions are imposed**
Negotiation	Litigation
Mediation	Arbitration
Conciliation	Adjudication
	Expert determination

2.6.2. Dispute avoidance

Dispute research in the last two decades has attempted to answer the question: how to avoid construction disputes? Although continuous efforts by scholars and researchers have been undertaken, the question has not been completely answered. This is because construction industry is inherited with latent problems that cause conflicts and disputes. A number of researchers draw attention to improving the current management practices. They recommended current management practices to adopt partnering and alliancing to replace traditional relationships (Latham, 1994; Acharya *et al.,* 2006; Love *et al.,* 2008). It was claimed that 'dispute adverse' attitudes would be embraced in the construction culture by incorporating these new practices (CRC, 2007). This attitude involves employing proactive measures to be incorporated with management change in construction organisations.

A key aspect of partnering is early involvement of contractors starting from early stages of projects. Involving a contractor in decision making can improve constructability of projects and build successful relationships based on trust and common set of gaols between partners. CRC (2007) mentioned a statement made by Swainston about Early Contractor Involvement ECI, "*ECI is a new, two staged approach similar to a project alliance during the first stage and a Design and Construct contract during the second. It essentially involves putting additional resources into the crucial early planning phase in order to maximise the benefits and cost savings that can be achieved during construction. Its innovation comes from the selection process, the interaction between the clients; contractor and designer during stage one, and the strong relationship-based interaction between the parties.*"

A key aspect in avoiding disputes can be seen in building healthy relationships among project parties by embracing new practices like 'partnership' and 'alliancing'. To achieve this change must take place in leadership and culture. These recommendations are recognised to be fundamental factors, meaning there are other secondary factors should be taken into consideration in avoiding disputes, like the factors discussed in the above sections. More discussion about partnership and alliancing is presented in the coming chapters.

2.7. The influence of leadership on disputes

In construction management, leadership is considered as a key success factor (Odusami, 2002; Long *et al.*, 2004; Toor and Ogunlana, 2005; Toor and Ofori, 2006c). However it is also responsible of failure (Katzenbach, 1994). To lead organisations, leaders need sophisticated skills in leadership, administration, organisation, and technical expertise (Toor and Ogunlana, 2006). In another significant work, Sir John Egan also launched two reports on the UK construction industry namely 'Rethinking Construction' in 1998 and 'Accelerating Change' in 2002 sponsored by the Strategic Forum for Construction. Egan pointed out the important of leadership to be employed in the current practice providing better solutions to the needs of clients. Fundamentally the reports included three factors to accelerate change in construction industry, they are:

1. *The need for client leadership.*
2. *The need for integrated teams and supply chains.*
3. *The need to address "people issue".*

Effective leadership is not important only as change driven force, but they also pivotal for reducing conflicts and disputes. It has been reported that leadership and management are related to conflicts and disputes (Mansfield *et al.*, 1994; Conlin *et al.*1996; Smith 1996,; Lim and Zain Mohamed, 1999). This can be referred to Latham's report conclusion stating that growing conflicting culture and adversarial attitudes among project teams, as witnessed in the current practice, can raise incidences of conflicts and disputes. A key role of leadership in this issue is manifested in creating and fostering strong culture in the organisation that can work against adversarial

attitudes in intra and inter-organisational relationships. Therefore if the leadership of client organisation was qualified and convinced of the importance of integrated teams between project parties, organisations can possess better results.

Acharya *et al.* (2006) reported that weak project leadership was responsible for conflicts in the Korean construction industry. Also CRC report (2007) pointed out that client leadership comes in the first place as the most important for reducing conflicts in construction projects. From these studies it can be said that leadership and managerial practices impact either positively (effective leadership) or negatively (weak leadership) in emergence of disputes. While effective leadership enhances reduction of disputes, weak leadership can participate in raising the possibility of disputes. This is referred to the role of leadership and management in construction projects as Mansfield *et al.* (1994) argued that most of the problems are human and management problems, not technical in nature.

2.8. The influence of Organisational culture on disputes

Organisational culture, as a concept, is accompanied and linked to leadership throughout this study. Culture in construction has its obvious impact on people and organisations (Rahman and Kumaraswamy, 2003). Dealing with disputes, several studies pointed out to the impact of culture on disputes (Arditi *et al*.,1985; Rhys Jones 1994; Smith, 1996; Daoud and Azzam, 1999; Chan and Suen, 2005,). Therefore maintaining strong organisational culture can be worked as immune system against conflicts and disputes. Understanding cultural factor enables leaders to reduce incidences of conflicts and disagreements among team's individuals. Strong organisational culture can be described by two factors namely: alignment of strategy and organisational culture and high organisational commitment among organisation's members (O'Reilly, 1989). An important view was made by Sir Michael Latham in his Interim Report 'Trust and Money' (1993, 1994) where he made an extensive review to the UK construction industry. He admitted the existing adversarial culture between parties by stating that the construction industry is associated with "*deeply adversarial*

attitudes. Many believe that they have intensified in recent years …disputes and conflicts have taken their toll on morale and team spirit." (CRC, 2007).

In fact this adversarial behaviour prevailed not only in the UK but in many other countries due to the common nature of construction context. To have better results, this adversarial culture must be changed to more healthy culture. Latham's report advices construction organisations to instil team work and trust to reduce adversarial attitudes and, consequently, building strong culture that can minimize the incidence of conflicts and disputes. The report added that "*teamwork reduces adversarial attitudes … many of the concerns, fears and alleged grievances could disappear if the vital issues of trust, money and teamwork were addressed effectively". The aim of Latham's report was to "make recommendations regarding reform to reduce conflict and litigation and encourage the industry's productivity and competitiveness*". Accordingly in another report issued in (1994), 'Constructing the Team', Latham introduced his recommendations to the industry for better performance with minimum conflicts.

Like the reports issued in the UK, many initiatives have been found. For example, in Australia, a number of studies have been conducted to investigate conflicting culture in the construction industry, for instance, No-Dispute initiative (1988), APCC (1997), CRC report (2007) and Echontech report (2007). The CRC (2007) reinforced the themes of Latham's report in reducing adversarial attitudes by suggesting cultural change to move the industry from being adversarial to more 'dispute adverse'.

2.9. Summary

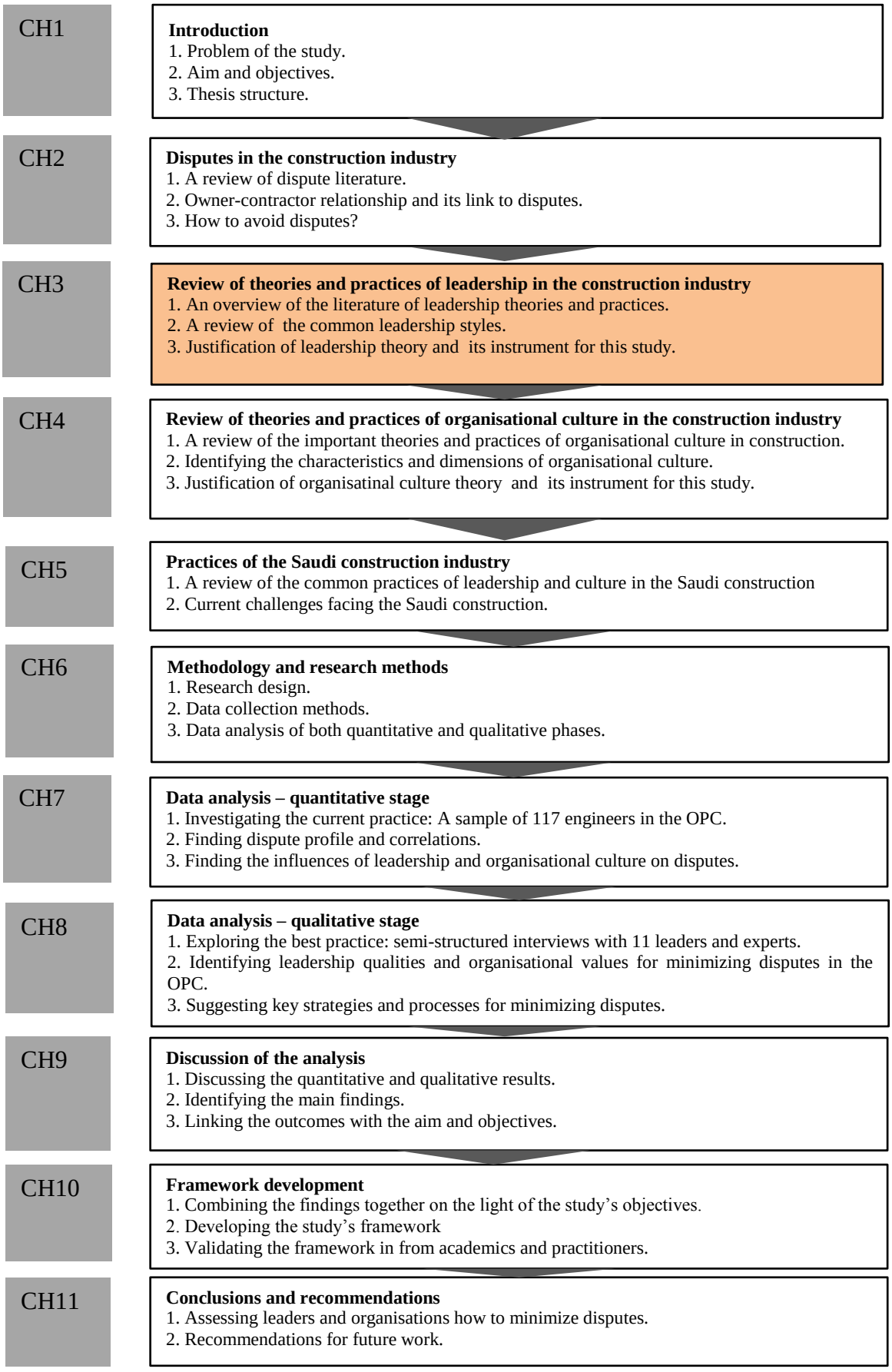
Disputes cause cost and time overrun and harms to the relationships among parties. Conflict management and dispute resolution are deemed as normal management practices in construction organisations. The success in organisations can be achieved by preventing conflicts and disputes as early as possible. Therefore researchers and practitioners should make more efforts to understand the issue of dispute in the

construction context. The focus has to be made on the main roots behind occurrence of disputes and the factors related to this occurrence.

In this review of literature the concepts of conflicts and dispute were discussed. Avoidance of disputes was also presented in terms of ADR and initiatives that have been found in the UK and Australian construction industries. In this thesis this view of disputes is taken and forwarded and it is proposed that management practices such as leadership style and organisational culture play a key role in individual behaviours and organisational practices and this has in turn an effect on occurrence of disputes. This is believed to focus on the main roots behind disputes and intended to bring a different view to the dispute research.

This chapter looked at the extant literature in order to understand the three strands i.e. conflicts, disputes and claims and their inter-relations. It further attempts to understand the research conducted on disputes and its understanding, so as to grasp the similarities and differences in approaches to avoid and/or resolve them. Most importantly, this chapter provided one part of the initial conceptual framework proposed for this study, the other two strands being 'Leadership Styles' (as will be discussed in chapter three) and 'Organisational Culture' (as will be discussed in chapter four). The three concepts are then brought together and aligned with the research questions. Subsequent chapters on Methodology, Data analysis and Discussion will be based on this proposed framework.

3 Chapter three - Review of theories and practices of leadership in the construction industry



3.1. Introduction

After reviewing construction disputes in chapter two, this chapter is devoted to leadership construct. Leadership contributes greatly to the success and failure of construction projects. The significant of leadership has led to unstopped research to find suitable styles to be employed by leaders to have the optimum results. During the last 75 years, a number of leadership theories have been developed by scholars to explain the phenomenon of leadership. Despite of the vast body of research that concerns about exploring and understanding the construct of leadership, still "*leadership is one of the most observed and least understood phenomena on earth*" (Burns,1978).

Construction industry has greater challenges in recent years more due to international economic, complexity and fragmentations. More particular view of the industry challenges includes business challenges, operating environment challenges (Socio-cultural, economic, technological, legal and regulatory and ethical) (Toor and Ofori, 2006). Therefore, qualified and effective leaders are needed in construction organisations in more essence than any time to lead people in vey turbulent and dynamic world (Fiedler, 1996). With international competition of construction companies to win projects in countries with different cultures and circumstances, like developing countries, more leadership challenges have been faced. These projects work are implemented in new environments, new cultures thus leaders should have the required skills and attributes to manage differences in ethnicity, nationality, religion and cultures. Accordingly, construction organisations work in new cultures and different situations assured the need for wise and superior leadership more than organisations implement projects in normal situations.

Despite the calls addressed by scholars to develop project leadership in the context of construction management, very few studies have been undertaken to meet the apparent need (skipper and Bell 2006; Toor and Ogunlana, 2006). Construction industry have special characteristics that differentiate it from other industries, these characteristics are of importance when considering leadership styles for project leaders. Harvey and

Ashworth (1993) described these characteristics as contractual arrangements, project characteristics, and project life-cycle. Project-based organisations have different nature and complexity than other organisations. They depend on task completion and have different parties that incorporating teams with multi-cultural backgrounds working together. Challenges also include executing projects in pre-determined time within tight budget and high quality. All of this required effective leadership style that can cope with the nature of these organisations.

The ultimate goal of this study is to uncover the influences of leadership style and organisational culture on disputes in public construction. The basis of leadership style theory will help to understand the leadership practices and behaviours in the investigated organisations. Therefore this chapter highlights leadership basics through discussing its definition and theories. The work is also extended to find what mentioned about the link between leadership style, organisational culture and disputes. Finally the rationale behind adopting leadership theory is presented.

Bearing in mind that difficulties and challenges accompanied construction projects have been a feature for construction industry, Langford *et al*. (1995) refer the lack of leadership research in construction to the lack of understanding of knowledge in the industry between social researchers and construction officials. However, researchers have pointed out at the importance of effective leadership as a success factor (Odusami, 2002; Loug *et al*., 2004; Toor and Ogunlana, 2005). To have qualified leaders in construction, practitioners are needed to work with researchers, share knowledge and cooperate to develop continual relationships. A debate is found in construction literature about weather academic institutions produce future effective leaders or not. Lack of project leadership can be linked to weak educational outcomes and the increasingly wide gap between practitioners and researchers.

In fact, any new contracts signed beyond national borders have many cultural challenges for project managers (Enshassi and Burgess, 1990). These challenges necessitate the need that managers possess better leadership styles and competencies. Leaders have to take challenging roles to meet future needs and people expectations.

They should have capabilities like confidence, optimism, hope, self-efficiency and reliance (Luthans and Youssef, 2004). There is an agreement, in literature, about emphasizing on the effective leadership to meet the new challenges in construction industry (Odusami, 2002; Toor and Ogunlana, 2006; Pathi and Farooqui, 2004). Leaders have to express better understanding to culture and people rather than tending to tasks and organisational achievements. Unfortunately, most construction leaders care about profit maximizations at the expense of their employees and organisational values (Toor *et al.,* 2007). This could destroy the relation between leaders and organisation's members.

3.2. Leadership definition

In general context, leadership is one of the most important aspects that have been found in the academic literature and it has been studied extensively more than any other concept (Higgs, 2002; Higgs and Rowland 2001). Leadership terminology can be found in almost every textbook talk about organisations (Trice and Beyer, 1993; House and Aditya, 1997). Over the years several definitions have been emerged, yet no agreement has been reached on one definition. Bass (1990) defined leadership as "*An interaction between two or more member of a group that often involves a structuring or restructuring of the situation and the perceptions and expectations of the members. Leaders are agent of change persons whose acts affect other people more than other people's acts affect them. Therefore, with this broad definition, any member of the group can exhibit some amount of leadership, and the member will vary in the extent to which they do so*". While Yukl (1998) looked at leadership from another angle as "*the process wherein an individual member of a group or organisation influences the interpretation of events, the choice of objective and strategies, the organisation of work activities, the motivation of people to achieve the objectives, the maintenance of cooperative relationships, the development of skills and confidence by members, and the enlistment of support and cooperation of people from people outside the group or organisation*".

When studying leadership and leadership styles it is better to differentiate between Leadership and management. Mowson (2001) believes that not necessarily managers become great leaders. Among the main Leader's features is planning for the long run to achieve the long term vision of the organisation while managers concern mostly with achievements of certain organisational objectives. In terms of vision, managers take the short view whereas leaders take the long view (Goetsch and Davis, 2006). Another difference between leadership and management can be drawn from the point that managers are oriented towards achieving organisation's goals by finishing tasks on time and within budget while leaders concern towards how they can accomplish the task. It can be stated that "*managers focus on systems whereas leaders focus on people*" (Goetsh and Davis, 2006). They inspire, motivate, and encourage personnel to achieve the highest level goals for both people and their organisation. So, leaders care about people more than tasks.

Academics and practitioners have different views toward leadership definition and practices despite the enormous efforts paid by researchers to clarify leadership and its characteristics during the past two centuries (Prewitt 2003). The definition of Leadership become more complex and not easy to be understood (Kotter, 1988). Nevertheless, some researchers tried to define leadership in simple concepts to make the definition less complicated and to enable people to understand it. For example, Northous (2010) saw leadership as a process in which an individual influences people to accomplish certain goals. The key in leadership is *"the ability to influence others''* (Robbins and Coulter, 2001; Lussier, 1990).

3.3. Theories of leadership

By introducing the concept of leadership in the last sections, leadership theories found mostly in literature are discussed here. With the development in leadership literature to understand its concept and characteristics, philosophical approaches were suggested as trials to bring more understanding about how leaders and followers behave. Accordingly a number of theories were developed like traits theory, contingency theory, situational theory, the autocratic vs. democratic leadership theory, the Fiedler's

contingency theory the Path-Goal theory Leader-Member-Exchange theory and the full range leadership theory. In this section, a review to these theories is presented.

3.3.1. The traits theory

The traits theory started in the 1900s when a concept emerged that a leader is born as a leader (Bass, 1990; Bryman, 1992; Nahavandi, 2003; Northouse, 1997). This theory emphasized the leadership is distinguished by personal traits and characteristics like intelligence, self-confidence and appearance which differentiate leaders from non-leaders (Northouse, 1997). Stogdill (1948) identified eight traits for this theory namely, intelligence, alertness, insight, responsibility, initiative, persistence, self-confidence and sociability. Recently, Yukl (1998) saw this theory as a composite of personal attributes, like personality, motives and values. Daft (1999) categorized the common leadership traits into four categories: personality, social, ability and physical. Stogdill (1974) reported that the traits theory can differentiate leaders from followers and also can assess effectiveness of leaders. From the above brief, it can be said that this theory treats personality variables as dominant of effectiveness of leadership.

Although the traits theory was prevailed through years, criticisms were drawn to this theory. Lucas (2008) criticized this theory in the point that successful leaders are not described by only possessing a set of traits. Also Daft (1999) added that personal traits cannot work alone to distinguish effective leaders from non-effective. Most of criticisms to the traits theory can be summarized in the following points:

1. It failed in identifying a set of traits that distinguish effective leaders.
2. Introducing traits by scholars was unlimited to a specific list of traits.
3. It was related strongly to the theory of ‘a leader is born as leader’ such that it was connected to traits rather than situations.

3.3.2. Contingency theory

Contingency theories explained leadership aspects based on a leader’s behaviours and interactions towards different situations. In other words the effectiveness of a leader is contingent with situations (Wageman *et al*., 2008; Yukl, 2002). Leadership style

matching to changing situations is the main aspect of this theory. A leader is considered effective in particular situations while he could not be effective in another situation. Four contingency theories have been developed by a number of researchers:

1. The Fiedler's contingency theory (Fiedler, 1967).
2. The autocratic vs. democratic leadership theory (Tannenbaum and Schmidt, 1973).
3. The situational theory (Hersey and Blanchard, 1969).
4. The Path-Goal Theory (House and Mitchell, 1974).

A brief of each of these theories is presented in the next subsections.

3.3.3. The Fiedler's contingency theory

Fiedler's theory is based on the interaction between leadership behaviours and the situation taken place (House and Aditya, 1997). It considers the point that effectiveness of a leader depends on the relationships with the followers, the nature of task and the degree of power (Fiedler and Leister, 1977). This means that the leadership style depends on the situation that the leader works within. In other words the managerial practices are contingent on the factors of a particular situation. Managers are rated by this theory to either relationship oriented or task oriented. Many researchers have investigated the three principles introduced by Fiedler. As a result of that, a notable improvement was recognized with the Fiedler's contingency theory.

3.3.4. The autocratic vs. democratic theory

The autocratic vs. democratic theory specifies that autocratic leaders tend to take decisions without involving members and partners while democratic leaders encourage member's participation in the decision making process. This participation depends mostly on three factors. The first factor is the leader values of believing in participation and mutual confidence with the participated members. Secondly, the participation depends on the values of the members regarding understanding the goals of the organisation and their ability to cope with the organisational values. Thirdly, it deals

with the type of organisation and organisational characteristics like effectiveness and culture.

A key point with this theory is that autocratic leadership is associated with task-oriented while democratic leaders tend to behave as relations-oriented. These approaches in interpreting leadership were mentioned in many theoretical models and by various researches. For instance, Bass (1990) introduced these approaches in chronological and systematic way through comparing autocratic versus democratic approaches, Table 3.1.

Table 3.1: Autocratic and Democratic concepts in leadership theories, (Bass, 1990)

Theory	**Autocratic Work-related Concepts**	**Democratic Person-related Concepts**
1938; Lewinand Lippitt	Authoritarian, autocratic	Democratic
1949; Nelson	Directive, regulative, manipulative	Employee centered
1950;Katz,and Maccoby centred	Production centred Employee	Employee centred
1951; Hemphill, and Seigel	Initiating structure	Considerate
1957;Fleishman s	Production emphasis	Employee emphasis
1958;Kahn	Path-goal structuring, modifying goals, enabling achievement	Direct need satisfaction
1960;Cartwrightand Zander	Goal achievement oriented	Group maintenance oriented
1960; McGregor	Theory X	Theory Y
1960;Bass	Coercive, persuasive	Permissive
1961;R. Likert	High performance, technical, close Supervision	Supportive, group methods, General supervision
1962; Blauand Scott	Distant, formal, aloof, cold	Close, informal, warm
1964;Blake and Mouton	"9,1" (production, not employee concerned)	"1,9" (employee, not production concerned)
1964; Day and Hamblin	Punitive	Non punitive
1965;F.C. Mann	Administrative, technical	Human relations oriented
1966; Bowers and Seashore	Work facilitative, goal Emphasizing	Interaction facilitative, supportive
1966; P. J. Burke	Directive	Nondirective
1967; Bass	Task, self-oriented	Interaction-oriented

1967; Fiedler	Task oriented	Relations oriented
1967; R. Likert	Systems I and II	Systems III and IV
1969; Heller	Coercive, directive	Joint decision making
1970; Wofford	Order, achievement, personal enrichment	Personal attraction, security and maintenance
1971; Yukl	Decision centralization, initiation	Considerate
1974; D. R. Anderson	Traditional, prescriptive	People centred, supportive
1974; Bass and Valenzi	Directive, negotiative (manipulative),persuasive	Consultative, participative, delegative
1974; Zaleznik	Charismatic	Consensual
1974; Vroomand Yetton	A(decision)	C, G (decision)
1976; Flowers	Closed	Open
1976; Keller and Szilagyi	Norewarding	Rewarding
1985; Misumi	Performance leadership	Maintenance leadership
Burns, 1978 Bass,1999	Transactional leadership	Transformational leadership

3.3.5. Situational Theory

Situational theory, which was introduced by Hersey and Blanchard (1969), is widely used in leadership studies. It has gained more concern from researchers; they added worthily improvements and modifications to the theory. This theory considers two main leadership concepts, situations and member's characteristics, which thought to describe the effectiveness of leadership. The awareness of leaders about their current situation that they work in is a key factor in their effectiveness. In other words, effective leaders must determine the proper behaviours for specific situations and fully understand how they cope with them (Pierce and Newstram, 2003). Accordingly, this theory is consistent with contingency theory in the aspect that every situation needs specific leadership style. Members in some organisations may have different attitudes, values, experiences and different levels of organisations. Therefore, this situation necessitates that leaders should realize these differences. In some cases adopting one leadership style cannot effectively lead these organisations. Instead, leaders may tend to combine styles when dealing with different member's characteristics in different situations.

3.3.6. Path-Goal Theory

Path-Goal Theory, on the other hand, was firstly introduced by House and Mitchell (1974) to describe how leaders can effectively influence followers. A key aspect in this theory is that leadership should support members to meet the organisational goals and objectives; that is to have similar pathways to achieve goals (Robbin, *et al.,* 1997). Howell and Shea (2001) reported that the leader behaviours satisfy members if these behaviours impact positively on the targeted goals and in the same time encourage the member's confidence towards reaching these goals. The main task of leaders in the Path-Goal Theory is to identify the proper behaviours that suit organisation's member needs. Then they have to cope with the situation to lead them all on a path towards specific goals. To achieve this goal, leaders have to remove barriers along the path and assess the members to reach the goals (House and Mitchell 1974).

Among leadership styles that found mostly compatible with the Path Goal theory are supportive, directive, participative, and achievement oriented styles, (Silverthorne 2001). These leadership styles can be described as follows:

1. Directive leaders guide members through explaining what they entitled to do by giving specific guidelines and procedures.
2. Supportive leaders are more described in the supportive aspect to the needs and the satisfaction of the members.
3. Participative leaders encourage members to participate in decisions making.
4. Achievement-oriented leader is characterized mainly by improving the organisational performance and caring about high standards by displaying confidence on members.

3.3.7. Leader-Member-Exchange (LMX Theory)

Leaders Member Exchange (LMX) theory was firstly established by Dansereau (et *al*., 1975). LMX has been revised by a number of researchers which resulted in some modifications. Basically, it depends on the relationship between leaders and

subordinates. It was described as a developing relationship over time between a leader and followers in terms of "*role making process*" and "*social exchange*" (Yukl, 1998); "an interaction process" (Northouse, 2007) ; "*dynamic relationship*" (Liden *et al.*, 2006). An assumption was imposed by this theory regarding the limited capability of leaders to fulfilling all the assigned responsibilities. In other words working with limited resources necessitate that leaders have to manage organisations effectively (Graen and Scandura, 1987; Graen and Uhl-Bien, 1995).

An important feature of Liability to LMX is associated with the leader ability to choose the best subordinates assigned to specific tasks. To achieve this, mutual trust and respect between the leader and his employees is a key aspect in executing successful roles (Dienesch and Liden, 1986; Uhl-Bien, 1995).

3.3.8. Transformational theory

Transformational leadership theory was introduced by Downton (1973). Burns (1978) has made notable contribution to this theory. Although Bass (1985) has made significant contribution to transformational theory in his 'full range of leadership theory', it is mentioned frequently in literature as a separate construct. Transformational leadership is described by its concern to the needs and motivations of members and by maintaining healthy relationship with them. The degree of morality is obviously displayed in these relationships. Leaders create a kind of 'transformation' in the organisation activities from a current situation to an upper level. In order to achieve this change, leader-member influence is displayed in attitudes and behaviours to conduct assigned tasks. A key feature of transformational leaders is that they possess the required ability to make a real change in the organisation's vision, strategy and the organisational culture (Daft, 1999). They do not 'contingent reward' offer with employees but rather the relationships are based on mutual morality and trust. In other words, transformational leadership is concerned with personal skills and values rather than exchange process between the leader and members.

Transformational leadership was conceived to create transformation from particular situation to a better future level (Bennis and Nanus, 1985). The authors emphasized that leadership is concerned greatly with vision, commitment, culture and strategies. These suggestions were supported by Bryman (2004) who admitted that transformational leadership demonstrates an understanding to the needs and motives of employees. Transformational leadership consists of five factors (five Is): idealized attributes, idealized behaviour, inspirational motivation, intellectual stimulation, and individualized consideration.

3.3.9. The full range leadership theory

Before approximately 30 years, Burns (1978) started the basic concept of 'transformational leadership'. He saw the leader's job is to transform the behaviours and expectations of the followers aligned with the organisational goals; he recognised it as a new model for leadership. An important view of Burns that the two leadership behaviours are existed separately, that means a leader is either described as transformational leader or transactional leader. Over the years, researchers have undergone extensive research on Burn's concepts and ideas. Bernard Bass (1985-2006) was one of the famous researchers to study transformational leadership. According to the work of Bass, there are two main types of leadership: transformational and transactional leadership. Besides these two types, Bass (1989) added laissez-faire or what was called 'non-leadership' to be a third type of leadership.

Although the full range leadership theory was a development of Burn's work, it was different in some aspects. While both transformational and transactional leadership were considered as "*opposite ends of the continuum*", Bass (1990b) reported that these two behaviours were not different with each other but rather shared many attributes and it can be said that they are not opposite to each other. According to Bass, the leader can display transformational, transactional or laissez-fair leadership. Therefore, transformational leadership is considered as an 'augmentation' to transactional leadership. This concept has been confirmed by many studies (Howell and Avolio, 1993; Yammarino *et al.*,1993). Bass and other researchers described the leadership

components as a "*full range model of leadership*" (Avolio, Bass, and Jung, 1999; Bass, 1998). An illustration of this model is shown in Figure 3.1.

In 1985, Bass constructed the first version of the Multi Factor Leadership Questionnaire (MLQ) to measure transformational and transactional leadership, throughout years the instrument has undergone many revisions and modifications. The MLQ has been spread out in more than 30 countries through various businesses and academic institutions with many languages (Avolio and Bass, 2004). The main characteristic of the MLQ, which is grounded in the full range leadership theory, is its continuous work of previous studies (Avolio and Bass (1991). Transformational leadership was defined by five subscales as: idealized influence (attributed and behaviour), inspirational motivation, intellectual stimulation and individualized consideration (Bass, 1990b).

Various definitions have been proposed by many researchers for transformational leadership through years. It is important to overview the main aspects of transformational leadership to have a clear understanding. An important aspect is that it 'transform' the behaviours of people and organisations to have extraordinary achievements through motivation and inspiring (Avolio and Bass, 2004), "*go beyond their own self-interests for the good of the organisation with their vision*" (Bass, 1985). They draw visions and establish the needed strategies to achieve organisational goals (Antonakis *et al*., 2003). Den Hartog *et al*. (1997) stated that transformational leadership "*transform the organisation by defining the need for change, creating new visions, mobilizing commitment to these visions and by providing awareness of the organisational vision and goals*". Also, transformational leaders work on the long-term for the goals and objectives of the organisation (Yukl, 1999); this is aligned with developing the needs of their subordinates in terms of accomplishments, commitment and autonomy (Avolio and Bass, 2004). Thus, transformational leadership create a shift in the individual core values toward shared set of goals and objectives to reach success for both the organisation and its members.

On the contrast, transactional leadership is based on 'contingent reword' to exchange between the leader and the followers (Bass, 1985). Transactional leadership can be described as task-oriented leadership that concern more on achievements and task

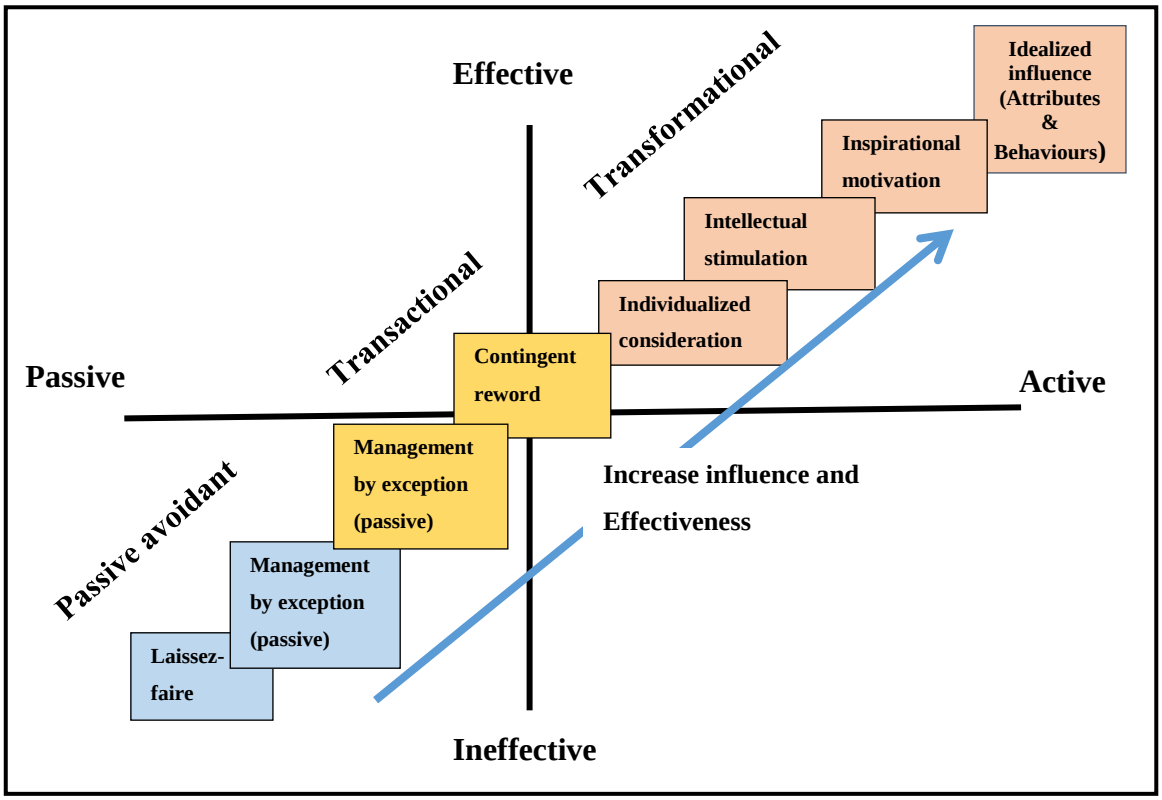


Figure 3.1: The full range leadership theory, (Avolio and Bass, 1991).

completion. Moreover, another aspect of transactional leadership is that it is effective in the short-term achievements but cannot be effective in the long-term goals.

Transactional leadership consists of three components namely, contingent reward, management-by-exception (active) and management-by-exception (passive). Contingent reward is related to the interaction between the leader and the followers. The leaders determine what to do and what kind of promotion the followers gain from good work and, conversely, what kind of punishments they get from other actions. Active management-by-exception is considered when leaders take corrective actions to the subordinate's behaviours to assure goals and objectives are met. In this behaviour, leaders expect mistakes before occurrence. In contrast, passive management-by-exception is referred to the behaviour when the leader interferes with undesired action

that has been already committed. This behaviour is different than active management-by-exception in the timing of leader's interference (Bass and Avolio, 1993). Laissez-fair leadership or 'no leadership' is featured when leaders avoid making decisions which represent passive approach. This type of leadership represents the absence of leadership that is practiced by a leader whereby he abdicated the granted authority and responsibility (Bass and Avolio, 1995).

The subscales of transformational leadership are described in in Table 3.2.The idealized influence (behaviours and attributes), or what is called 'charisma', is one of the main characteristics of transformational leadership (Bass, 1985). It is exhibited into two different dimensions: 1) idealized influence (behaviour) which is based on charismatic actions or behaviours of leaders that concern with values and beliefs, 2) Idealized influence (attributed) which refers to the view of the followers to the leader, how do they attribute the leader; this depends on the attributes he displays.

Sosik and Godshalk (2000) described transformational leader as one who "*rouses team spirit, reframes stressful events into developmental opportunities, and inspires others to perceive difficult situations as meaningful challenges necessary for developing one's professional and personal skills*". It builds confidence and trust in the relationship between leaders and others. With the idealized influence, the leader behave as a role model that he can create a future vision and convincing the followers to work together to reach goals. It is associated with beliefs, values; mission (Antonakis *et al*., 2003).

Table 3.2: Leadership scales, (Avolio and Bass, 1991).

Leadership style	**Subscale**	
Transformational	Idealized Attributes IA	The leader has the followers' respect, faith, and trust. The followers want to identify with the leader. The leader shows determination and conviction.
Transformational	Idealized Behaviors IB	The leader shared a vision and sense of mission with the followers. Radical, innovative solutions to critical problems

		are proposed for handling followers' problems.
Transformational	Inspirational Motivation IM	The leader increases the optimism and enthusiasm of followers. The leader communicates with fluency and confidence using simple language and appealing symbols and metaphors.
Transformational	Intellectual Stimulation IS	The leader encourages new ways of looking at old methods and problems. The leader emphasizes the use of intelligence and creativity. The leader provokes rethinking and re-examination of assumptions on which possibilities, capabilities, and strategies are based.
Transformational	Individual Consideration IC	The leader gives personal attention to followers and makes each feel valued and important. The leader coaches and advises each follower for the followers' personal development.
Transactional	Contingent Reward TCR	The leader gives followers a clear understanding of what needs to be done and/or what is expected of them, then arranges to exchange rewards in the form of praise, pay increase, bonuses, and commendations.
Transactional	Mgmt. by Exception (Active and Passive) TMAand TMB	When it is active, the leader monitors the followers' performance and takes corrective action when mistakes or failures are detected. When it is passive, the leader intervenes only if standards are not met.

Passive Avoidant	Laissez-Faire LF	Leadership is not attempted. There is abdication of responsibility, indecisiveness, reluctance to take a stand, lack of involvement, and absence of the leader when needed.

The inspirational motivation is related to encouraging and empowering followers to achieve the organisation's goals. It can be defined by the ability of a leader to have a clear vision of the future and convincing followers to work enthusiastically by showing them with the meaning to do what should be achieved, Bass (1997). To inspire others, the leader should have the capacity to act in moral and ethical way. Communication skills are important for inspirational leaders to make tasks clear and stimulating subordinates to have transformational change in the organisation. This leadership behaviour makes the leader capable to challenge and motivate the followers (Avolio and Bass, 2004).

The intellectual stimulation is associated with the capacity of a leader to promote the intelligences of subordinates to think in more creative ways to find solutions to the faced problems. It is also stimulates the employees to refer to their values, assumptions and beliefs when they solve problems (Den Hartog *et al*., 1997). By encouraging the employees to think creatively, they can solve problems that were not figured by the leader (Avolio and Bass, 2004).

The individualized consideration is considered as a basic component of transformational leadership, Bass and Avolio (1990). It is related to treating the subordinates as individuals by paying attentions to their needs, supporting them, developing them in the framework of the organisations. Transformational leaders interact with individuals personally, focusing on recognition of their role in the organisation and have the view that the process of developing individuals is an integrative part from the whole organisational development. In this regard effective leaders share vision and goals with individual's objectives which can bring successful achievements (Zaleznik, 1963). Beside, leaders, through personal interactions, can diagnose what motivate individuals and work towards satisfaction of their main needs.

Other than the three types of leadership discussed above, three leadership outcomes were proposed to evaluate the performance of leaders (Bass and Avolio, 1997). In other words these outcomes show how the three leadership types, transformational, transactional and laissez-fair, are related to leader's performance. These three outcomes are extra effort, effectiveness and satisfaction. Extra effort outcome refers to the efforts that a leader exerts beyond the normal behaviour. Effectiveness outcome reflects how effective a leader as perceived by the followers. Finally, satisfaction outcome shows how the followers are satisfied with a leader.

3.4. Instruments for measuring leadership

By highlighting leadership theories in (section 3.3), it is proper to mention some of the used leadership instruments used to measure different styles of leadership. Due to emerging of various theories after the era of traits theory, researchers have developed certain measures to test leadership. Some of the used instruments utilized old instruments with some modifications to suit the recent leadership situations. The instruments were primarily designed to measure leaders behaviours, followers behaviours and different situations (Dansereau *et al.*, 1975; Yukl, 1988). In accordance to the fact that no universal theory for explaining leadership has been reached, no single instrument was agreed on to describe the aspects of leadership. Every instrument was designed to measure certain leadership aspects such as traits behaviours and charisma. Sinha (1995) listed the common used measures beginning from 1943 until 1995 and, these measures are shown in Table 3.3. In the coming subsection, an elaboration on the widely used instruments is shown.

Table 3.3: leadership instruments, (1995, Sinha).

Year	Scholars	Leadership measurement(1995, Sinha)
1943	Iowa State University Kurt Lewin	Autocratic versus Democratic Leadership
1957	Ohio State Studies	Leadership Behaviour Description

	Hemphill and Coons	Questionnaire (LBDQ)
1963	The University of Michigan	Two types of leadership behaviours; Employee Orientation and production Orientation.
1967	Fiedler	Least Preferred Co-worker (LPC)
1971	House	Path-Goal Leadership Questionnaire
1974	House and Dessler	Path-Goal Leadership Questionnaire
1988	J.Indvik	Path-Goal Leadership Questionnaire
1995	Graen and Uhl-Bien	LMX 7 Questionnaire
		Other Leadership measurements
1994	Bass and Avolio	Multifactor Leadership Questionnaire
1989	Larson and Lafasto	Team Effectiveness Questionnaire
1979	Blake and Mouton	9-1Style versus 1-9 Style
2001	Harris and Ogbonna	Path-Goal Leadership Questionnaire
2001	Price	Path-Goal Leadership Questionnaire
2005	Schriesheim, Castro, Zhou and DeChurch	Path-Goal Leadership Questionnaire

3.4.1. Multi-factor leadership questionnaire MLQ

The MLQ was firstly introduced by Bass (1985) to measure transformational leadership which was theorized by Burns (1978). Various versions of the MLQ has been developed since 1985 including Bass and Avolio (1989), Bass and Avolio (1995) and MLQ form 5X (Avolio and Bass, 2004). The MLQ fundamentally measures, transformational, transactional and laissez-faire leadership (Bass and Avolio, 1990). The subscales of transformational leadership involved in the MLQ include idealised attributes, idealised behaviours, inspirational motivation, and intellectual stimulation and individualised consideration while transactional leadership involves contingent reward management-by-exception (active and passive). The MLQ- 5X consists of 45 questions and it has been divided into nine subscales and three leadership outcomes.

The MLQ is used recently to measure the full range leadership model (Bass and Avolio, 1993a; Avolio and Bass, 2004). This instrument has been tested and validated since 1985 and still is being tested and used by many researchers worldwide. Moreover the use of the MLQ expanded to cover measurements of the ratio of the leadership styles

(Den Hartog *et al.,* 1997) . Many researchers have considered the MLQ as a reliable measure to test the full range of leadership even though it has some weakness in its theoretical framework of leadership (Antonakis *et al.,* 2003). Tepper and Percy (1994) reported that examining latent structure of the MLQ shows that both the idealized influence and inspirational motivation form a single construct. Also Carless (1998) pointed out that the MLQ measures hierarchical construct of transformational style instead of measuring separate transformational leader behaviours.

3.4.2. Leader member exchange (LMX-7)

Various leadership studies used Leader-Member Exchange LMX to test the relationship between leaders and followers at work. The LMX concerns more on "*the degree to which leaders and followers have mutual respect for each other's capabilities, feel a deepening sense of 'reciprocal trust', and have strong sense of obligation to one another*" (Northouse, 1997). According to the scores of the LMX, higher scores mean stronger relationships between a leader and his followers. Sparrowe and Liden (1997) indicated that this theory is based on social exchange between leaders and followers. It is characterized by social influence of a leader that is shown in personal behaviours, (Bhal and Ansari, 1996). The LMX is consisted of 7 items that test the degree of exchange between a leader and the followers. Although many researchers reported empirical validation for the LMX, the instrument has a lack of "*psychometric rigor*" (Bhal and Ansari, 1996).

3.4.3. Least Preferred Co-Worker (LPC) Measure

The LPC was first developed by Fiedler (1974) to identify leadership style by describing co-worker's behaviours. This instrument comprises of 18 objective subscales to test a co-worker's behaviours to determine leadership style of the tested person. Higher scores describe more tendency of a leader to personal relationships while lower scores mean emphasis on task achievements. Task oriented leaders concern primarily on tasks and how to be completed, and then they tend to build relationships with their employees. The LPC has been criticized of its assumption that leadership style is fixed for each leader. This assumption contradicts leadership development as changing within

organisations; it implies that organisations do not encourage leader's improvements but rather accept leaders with leadership style that best fit to its situation (Robbins *et al.*, 1994).

3.4.4. Path -Goal Leadership Questionnaire

The Path Goal Leadership Questionnaire was first incorporated by House (1971) and after that it has been undergone development and modifications by researchers like House and Dessler (1974), Indvik (1988), Harris and Ogbonna (2001), Price (2001) and (Schriesheim, *et al.*, 2005). This instrument is used widely to measure leadership styles based on Path Goal Leadership theory. The measured leadership styles are: directive, supportive, participative, and achievement oriented. The instrument contains 20 questions and respondents rate themselves regarding behaviours and different situations. The ratings rage from 1 (weak) to 7 (strong) and all scores are added to determine the leadership style of the respondent.

3.4.5. Autocratic versus Democratic Leadership questionnaire

This instrument was firstly developed by Lewin *et al.* (1939) when they tested leadership styles among a group of children. This instrument was developed to determine autocratic and democratic leadership styles. Autocratic leader is described by possessing driving power and central authority in the first place. Whereas, democratic leaders are featured with "*more room to the followers to breathe*"; showing more flexibility and deeper relationship with followers. Although Shaw (1955) reported that "*speed and accuracy of performance are greater under authoritarian than under democratic style*", follower's satisfaction and respect are shown more with democratic leaders. Studies comparing between autocratic and democratic styles were conducted by various researchers such as Tannenbaum and Schmidt (1973), Lewin, White, and Lippitt (1939) and Lippitt and White (1943). Conclusions out of these studies included that whereas polices are made by autocratic leaders, democratic leaders tend to take decisions regarding policies after discussion with group of people. Moreover, strategies mostly are set out by autocratic leaders while democratic leaders depend on explaining process before establishing any strategy. Regarding relationships with followers,

autocratic leaders stand far from members while democratic participate and maintain good relationships.

3.5. Research of leadership style in construction

Several leadership styles have been discussed in the construction literature in the last two decades. Among the suggested leadership styles are transactional, transformational, laissez faire, charismatic, democratic, autocratic, consultative, joint decision making, authoritative, participative, servant, tyrant, task oriented, relationship oriented, production-oriented, employee-oriented, performance or maintenance, directing, coaching, supporting, delegating, authority-compliance, impoverished management, country club management, team management, middle of the road management and so on (Toor and Ofori, 2006). Leadership styles that have to deal with people can be categorized into five styles namely: autocratic leadership, democratic leadership, participative leadership, goal-oriented leadership and, situational leadership (Goetsch and Davis, 2006). The researchers have proposed leadership skills, characteristics and what leaders need to have to professionally achieve successful projects.

Regarding effectiveness of leadership, Goodwin (1993) stresses the importance of effective leadership and points out the skills required of effective project managers. Many researchers argued that the uniqueness of construction industry influences leadership styles. For instance, Harvey and Ashworth (1993) reported special features that would affect leadership styles like project characteristics, contractual arguments, project life cycle and environmental factors. These styles are influenced by project circumstances such as duration, intensity of work. Also, method of procurement and external market states like level of unemployment affect which style of leadership can be adopted.

Construction project performance is also influenced by leadership styles possessed by leaders. Ogbonna and Harris (2000) conducted an important study to explore the relationship between leadership styles and organisational culture. By examining the nature of this relationship, they found that the relation between leadership style and

performance is mediated by the form of organisational culture. Moreover, Odusami *et al.* (2002) found that project performance would be highly affected by the project leadership style. Mustafa and Naumi (2003) reported that there is a significant correlation between preferred management style of the site managers and their level of effectiveness. Slevin and Pinto (2004) investigated four leadership styles namely, shareholders leadership, autocratic leadership, consensus leadership and consultative leadership. They concluded that the best leadership style for overall performance was consultative autocrat. In this leadership style a leader build his final decision by absorbing the information input from his employees.

In another study, Thammavong (2007) reported some features that affect choosing the preferred leadership style like organisational structure, project type, objectives and goals, time availability, team and individual knowledge. He found similarities in leadership styles between the government and private sector. There were eight leadership styles found in the Laos construction industry. The power to influence others is a key of the leader's ability to achieve leader's goals and to being effective as it is very difficult for a leader to empower employee due to its process. Always leaders in construction need to focus on the way the leaders develop, manage, and maintain relationships with subordinates. In a study of the quantity surveyors in Hong Kong, Fellows (2003) noticed that they were mostly relationship-orientated and tended to adopt a supportive style of leadership, indicating stronger relationship tendency amongst contractors than consultants.

A number of researchers investigated transformational leadership style like Chan and Chan (2005) as they recommend that building professionals should adopt and promote the use of transformational leadership in their interactions with employees in order to realize greater employee performance and satisfaction. They pointed out that all transformational factors (charisma, inspirational motivation, intellectual stimulation, and individualized consideration) and transactional factors (contingent reward, management-by-exception, active and passive) were highly correlated with the rated outcomes (such as leader effectiveness, extra effort by employees, and employees' satisfaction with the leaders). Giritli and Oraz (2004) studied two leadership styles namely, participative and directive styles. In surveying of leadership styles of

construction professionals in Turkey, they observed that female and male managers were similar in their transactional leadership behaviour but their transformational practices were significantly different. They suggested the task-oriented style for both sexes in a gender-congruent context. The study concluded that in a construction environment with larger proportions of male subordinates, male managers are less democratic than female managers. Also the study found that managers in higher positions were stronger in participative style than those in lower management positions, showing that senior managers lead by example, yet exert tight control over poor performance and tend to place greater emphasis on quality-based culture.

In this regard, Toor and Ogunlana (2006) conducted a survey on leadership of mega projects. They indicated that the attributes of transformational leaders were rated high as compared to those of transactional leaders for successful performance on large construction projects. The study reported that the use of authority and punishment was rated among the lowest rated leadership behaviours. Limsila and Ogunlana (2008) investigated the correlation between leadership styles and subordinate commitment. They examined three leadership styles namely transactional, transformational and laissez-faire. They found that transformational leadership style had a positive correlation with work performance and organisational commitment of subordinates and produced high leadership outcomes. The transactional style, on the other hand, had a negative correlation with work performance and organisational commitment of subordinates.

Although transformational leadership style has proven to be more effective comparing to other styles of construction project leaders, a number of researchers have argued that in today's world, organisations are continuously changing and hence expect the leaders to employ a different approach to lead the change (Daft, 2003). More criticism was reported by Yukl (1999) as he illustrated conceptual weaknesses in transformational and transactional leadership. His arguments were focused on underlying influences processes for transformational and transactional leadership that are still unclear and diverse components, which makes the definition to be more ambiguous. Toor *et al.* (2007) argued that both transformational and transactional leaderships lack another important conceptual weakness that is their 'fit' with the situation concluding that

transformational and transactional leadership styles are not universal may not well match with certain situations. In addition, some important transformational behaviours (such as inspiring, developing and empowering) are missing in the Bass (1996) version of the theory and in the MLQ, which was designed to test the theory (Bass and Avolio, 1990).

Authentic leadership is another leadership style that although it is considered as new style comparing to other leadership styles discussed above, it was suggested by a number of researchers to solve problems and to face the new challenges in construction industry. George (2003) stated that authentic leaders have unique leadership style that is consistent with their personality and character; they understand their purpose, practice solid values, lead with heart, establish connected relationships, and demonstrate high level of self-discipline. Authentic leaders are described as those who motivate people, win the support of their followers, and achieve project objectives and goals. Among attributes of authentic leaders is positive energy, high sense of integrity, moral character and self-discipline, clear purpose, concern for others, confidence, hope, optimism, resilience, and personal values (Gardner *et al.*, 2005).

Many researchers have suggested development to authentic leadership to sustain better performance in organisational context. Luthans and Avolio (2003) reported the significance of two factors with organisational leaders to reach authenticity, namely self-awareness and self-regulation behaviours as shown in Figure 3.2. The weakness of authentic leadership might be that it is newly emerged comparing to transformational and transactional leadership styles and that has not been well validated in the construction research literature.

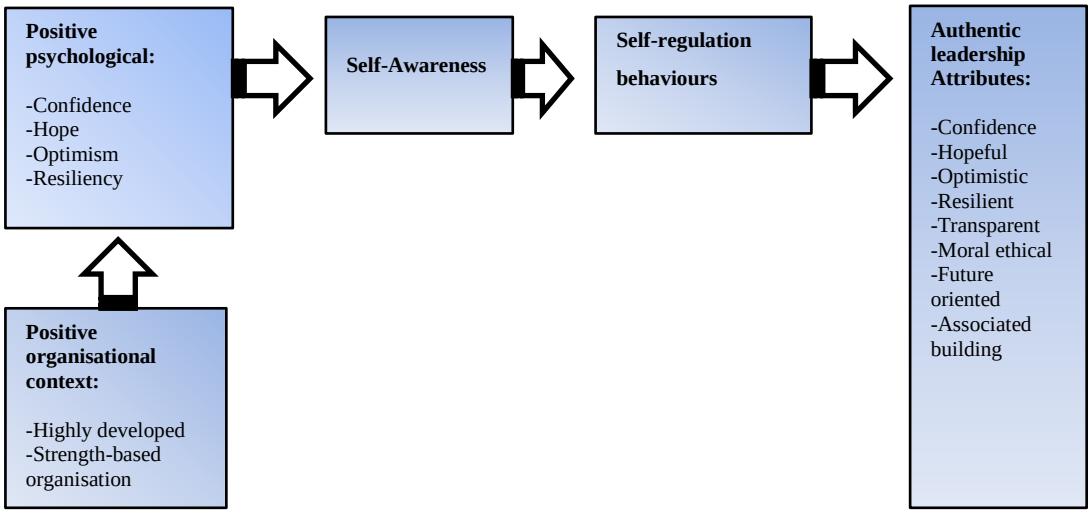


Figure 3.2: Authentic leadership development, (Luthans and Avolio, 2003).

3.6. Leadership and organisational culture

By considering leadership as a key factor in the success of organisations, organisational culture also has a vital role. It becomes more significant with the turbulence and complexity associated with organisations nowadays. In fact, organisational culture and leadership are two important factors that have been found to be essential to organisational success (Bass and Avolio, 1993). Organisational culture can be defined as the common set of values and beliefs found in the members who impact the actions, behaviours and perception in the organisation (Schein, 1999). Organisational culture was perceived by numerous numbers of researchers to be a source of success for organisations in very competitive world (Miron, Erez, and Naheh, 2004; Kahai, and Avolio, 1998; Howell and Avolio, 1993). It influences people inside organisations to have the shared values to work in an effective manner. Strong organisational cultures have visions and beliefs to influence their members to achieve the goals and objectives while promoting them with reword. They concern in people development, practicing mutual communication and focusing in the long-term achievements (Deal and Kennedy, 1982). The main factors that affect organisational culture can be member's background, past experiences, people's assumptions. Apparently, culture is deep and complex and no culture is right or not (Schein, 1999).

Leadership and organisational culture display strong inter-correlation in organisational context "*intertwined*", (Bass and Avolio, 1993; Ogbonna and Harris, 2000; Schein, 1992). This relationship depends to a great extent on the ability and the skills of leaders since these skills are shaped and moulded by culture (Bass and Avolio, 1993). In this regard it is important to understand the development of organisational culture. During building of organisations, founders normally create cultures through their values and beliefs. With organisational development with time, organisations reflect the espoused values and beliefs on their leaders. Thus these new leaders are shaped by their organisational culture. In the same way, leaders can influence and shape organisational culture with their new vision and values (Congerand and Kanungo, 1987; Trice and Beyer, 1993; Denison, 1990). As the organisation grows, the interaction between the leader and the members determines the underlying principals like how can solve the organisational problems and behave according to certain patterns. Therefore every organisation has its own culture that may differ than others.

3.7. The influence of leadership on disputes

Despite many researchers reported the increasing importance of leadership in construction projects, very rarely the impact of leadership on construction disputes is investigated deeply. Nevertheless a number of researchers mentioned briefly this impact; examples of these researchers are (Mansfield *et al.,* 1994; Conlin *et al.,* 1996; Smith 1996; Lim and Zain Mohamed, 1999). However, the majority of studies of disputes have a common aspect of less clarity and lack of deeper investigations to the causes of disputes (CRC, 2007).

The nature of construction industry is linked to the growing conflicting culture and adversarial attitudes among project teams, as witnessed in the current practice, can raise incidences of conflicts and disputes (Latham, 1994). A key role of leadership in this issue is manifested in creating and fostering strong culture in the organisation that can work against adversarial attitudes in intra and inter-organisational relationships. Therefore if the leadership of client was qualified and convinced of the importance of integrated teams between project parties, organisations can possess better results (Egan, 1998).

Acharya *et al.* (2006) reported that weak project leadership was responsible for conflicts in the Korean construction industry. Also CRC report (2007) pointed out that client leadership comes in the first place as the most important factor for reducing conflicts in construction projects. From these studies it can be said that Leadership and managerial practices impact either positively (effective leadership) or negatively (weak leadership) in emergence of disputes. While effective leadership enhances reduction of disputes, weak leadership can participate in raising the possibility of disputes. Both academicians and practitioner have to focus on the magnificent role of leadership when investigating the problem of disputes (Alkhamali *et al.,* 2014). This is referred to the role of leadership and management in construction projects as Mansfield *et al.* (1994) argued that most of the problems are human and management problems, not technical in nature.

3.8. Leadership approach and instrument for the study

The investigations conducted in this study include exploring leadership in the OPC organisations as perceived by the organisation's members. This implied on the researcher to find the most suitable theory to meet the circumstances of these organisations and in the same time to fulfil the research's aim and objectives. It is also known from practice that the leadership of public construction has weaknesses and need a radical change. The current leadership have to adopt new styles by which they can lead people and organisations to achieve better results.

Therefore by surveying leadership literature, it is found that the full range of leadership theory may fulfil this aim. This theory was discussed in (section 3.3.9) in more details. Kirkbride (2006) stated that "*the full range leadership model is probably the most researched and validated leadership model in use worldwide today*". Transformational leadership, as part of this theory, has been proved to be an effective style for those organisations that need change (Bass and Avolio, 1994; Wilmore and Thomas, 2001). Over the last 30 years enormous number of studies has been conducted on this theory and its instrument the MLQ through the world with more than 12 languages and hundreds of studies. The MLQ is considered as a valid instrument for the full range of leadership theory to measure the three styles of leadership, transformational, transactional and laissez-fair leadership, (Antonakis *et al.*, 2003). Also the MLQ has

been used in all leadership levels in a variety of organisations that include government organisations, non-profit organisations and business organisations around the world (Avolio and Bass, 2004).

The full range leadership theory (section 3.3.9) has three types of leadership namely, transformational, transactional and laissez-fair leadership. Transformational leadership captured more focus in literature than the other two styles due to its transformational ability and effectiveness. With the subscales of transformational leadership as discussed previously (the 5 Is), organisations can possess effective leadership that are dynamic, visionary and inspired to lead toward success. In this section the effectiveness of transformational leadership is discussed to show its powerful points that may be utilized in the public construction organisations.

The MLQ is used in the full range leadership to measure the style of a leader in an efficient way. The MLQ is utilized in this study because of its advantages over other instruments. It captures individual behaviours that monitored by others to affect people and organisations. It can also show what kind of behaviours that leaders possess to motivate others. Another aspect of leadership is measured here which in non-leadership or laissez-fair which represent the absence of leadership in the character of the leader. Thus, this instrument is considered more superior than other instruments in its inclusion of effectiveness of leadership. That is it clarifies the effective leadership behaviours in more efficient and clear way.

Moreover the 360 degree feature of the MLQ makes it capable to measure all levels of leadership like CEO's, supervisors, coordinators, team heads and all other managers therefore it is a proper choice for all organisations and across different culture (Bass, 1998). This feature may assess the current study since it is applied in different culture like the Saudi construction public construction which needs certain instrument that is broadly applicable to such culture. Finally it has been undergone extensive researched among various types of studies and its reliability and validity were tested in hundreds of studies and theses around the world.

3.8.1. Advantages and characteristics

Organisational leaders need some sort of holistic leadership that cope with challenges facing the organisations. Beside managing external challenges, leaders need to deal with people inside the organisations. Construction organisations are considered as an example to these organisations that need exceptional leadership with visionary type. Parry (1996) explored the effective aspects of transformational leadership in particular the managerial ability found in transformational leaders. That is, when describing a leader as transformational leader he must be a good manager before that. This ability also distinguishes transformational and transactional leadership. In this regard, Galpin (1996) pointed out to six attributes that made transformational leadership more effective than other types of leadership. These attributes included creativity, team orientation, appreciation, teaching, responsibility and recognition.

Transformational leadership style, as the most influential style in the full range theory, has the required powerful effect to transform organisational activities from day to day actions to exceptional achievements (Bass and Avolio, 1994; Yukl, 2006). To have these achievements, leaders must understand the full range of leadership to understand the different styles of leadership which may be suitable to different situations (Avolio and Bass, 2002). A number of researchers have assured the importance of training for transformational leaders to develop the needed skills, leadership knowledge and learn how to lead people and organisations (Avolio and Luthans, 2006; Davis, 2003; Marzano *et al.*, 2005)

Transformational leadership has been worthy researched and developed through years to reach as its shape today Bass (1985, 1988, 1990, 1997, 1993, 1994, 1995, 1997, 1998, 1999; Avolio and Bass, 2004; Bass and Riggio 2006). Due to the attractiveness of the Bass's work on transformational leadership since 1985, researchers have conducted enormous research investigating various effects and characteristics of this leadership style. It was found that transformational leadership has positive association with

employee's satisfaction and trust (Butler *et. al,*1999); performance (MacKenzie, 2001; Yammarino *et al.,* 1993); effectiveness (Hoover, 1991).

In the work of Bass (1985), he reported an 'augmentation' between transformational and transactional which was in contradiction to the theory of Burns (1978). Charisma is functioned in transformational leadership as an 'innate ability' which is partially attributed (Avolio and Bass, 2004; Avolio, 2005). An association was found between transformational leadership and contingent reward (Bass, 1998). In consistence with this, many researchers reported relationships between transformational and transactional leadership Howell and Hall-Marenda (1999). Jung and Avolio (2001) showed the difference of the influence of transformational and transactional leadership on the employee's values and trust. They found that transactional had only direct influence while transformational had both direct and indirect influences. The use of reward system is the main component in transactional leadership which may be considered as an effective in some cases of organisations (Yukl, 2006). Table 3.4 shows Bass's differentiation between the main leadership types. It is clear that transactional leadership works as an augmentation to transformational leadership which focuses on mission, vision and trust. Bass and Avolio (1994) reported that some leaders may adopt transactional leadership in the beginning of their leadership development before they shifted to transformational leadership. Although transactional leadership is associated with compliance of followers, transformational leadership represents commitment to the leader's vision (Bass and Avolio, 1994; Yukl, 2006).

3.8.2. Transformational leadership and organisational culture

It was presented in section (3.6) that both leadership and organisational cultures are interlinked. The impact of leadership style on organisational culture has been tackled by many researchers. For example, Bass (1985) pointed out that transactional and transformational leadership have different effects on organisational culture. While transactional leadership work within the borders of organisational culture, transformational leadership tends to change organisational culture to cope with its vision. Accordingly, transformational leaders motivate members to have a higher level of organisational performance (Quick, 1992; Nicholls, 1988; Howell and Avolio, 1993)

and take responsibility to develop and empower their followers to reach their goals (Bass and Avolio, 1993).

The relation between transformational leadership and organisational culture has been studied by many researchers. Howell and Avolio (1993) conducted a study on transformational leadership model and organisational culture. They concluded that mangers with high scores of transformational leadership were more innovative and risk takers. These mangers also demonstrated less bureaucratic and high performance. Also, it was found that transformational leadership and culture influence positively behavioural activities of organisation's members like group productivity (1998, Deluga).

Table 3.4: Transformational leadership versus transactional leadership and Laissez-fair, Bass (1990).

Transformational leader: Idealized influence or charisma: Provides vision and sense of mission, instils pride, gains respect and trust. Inspiration: Communicates high expectations, uses symbols to focus efforts, and expresses important purposes in simple way. Intellectual stimulation: Promote intelligence, rationality, and careful problem solving. Individual consideration: Given personal attention, treats employee individually, coaches, advises.
Transactional leaders: Contingent reward: Contracts the exchange of rewards of effort, promises rewards for good performance, recognizes accomplishments. Management by exception (active): Watches and searches for deviations from rules and standards, take corrective actions. Management by exception (passive): intervenes only if standards are not met.
Laissez-fair: Abdicates responsibilities, avoid making decisions.

Bass *et al.* (1994) performed long-term study among 486 leaders on the impact of the training of transformational leadership on organisational culture; the followers rated

their organisational culture as more transformational with the time frame. Also the leaders rated their cultures using self-rated questionnaire as more transformational after completing the training. Chadwick (1999) investigated transformational and transactional leadership and organisational culture among public schools using the Organisational Description Questionnaire ODQ for measuring organisational culture and MLQ for assessing leadership. He found that every factor was statistically significant top the other.

There is evidence in the literature that strong organisational culture is associated with effective leadership that has the needed qualification (Kotter and Heskett, 1992). Transformational leaders have the inspirational and visionary qualities to make change in their organisations to better results. They depend greatly on visions to foster creative change and development of organisations (Bass and Avolio, 1993). Many researchers have concluded that survival of organisations depends highly on the influence of leaders in changing cultures and the reaction of organisational culture to this change (Kotter, 1998; Schein, 1997).

According to Bass and Avolio (1993), transformational leaders maintain transformational qualities while changing their organisational culture. These qualities include intellectual stimulation, accomplishment, and individual consideration. In addition, Waldman and Yammarino (1999) found that charismatic leadership has a direct effect on organisational culture and, conversely, organisational culture impacts charismatic leaders. Although charismatic leadership is an extension of transformational leadership, ethics are required to be employed to make a difference. Howell and Avolio (1992) show that ethical charismatic need to focus importantly on seven factors that differentiate ethical leaders from non-ethical as shown in Table 3.5.

. These seven factors are as follows:

- Power
- Vision
- Criticism
- Questioning leader's view
- Communication

- Reaction to follower's needs
- Morality satisfaction

It is evidenced from the above discussion that transformational leadership would improve organisational culture through embedding the key transformational skills and behaviours like instilling vision, building trust and fostering problem solving atmosphere, Figure 3.3.This effectiveness can help the current study in drawing attention to the main factors of transformational leadership to influence organisational culture.

Table 3.5: Ethical and unethical charismatic leadership, (Howell and Avolio,1992).

Factor	Ethical charismatic leader	Unethical charismatic leader
Power	Uses power to serve others	Uses power only for personal gain
Vision	Align vision with follower's need and aspiration	Promote own personal vision
Criticism	Considers and learns from criticism	Censures critical opposing views
Questioning leader's view	Stimulates followers to think independently and to question the leaders view	Demands own decisions be accepted without question
Communication	Open, two-way communication	One way communication
Reaction to follower's needs	Coaches, develops and support followers Shares recognition with others	Insensitive to follower's needs
Morality satisfaction	Relies on internal moral standards to satisfy organisational and societal interests	Relies on convenient, external moral standards to satisfy self-interests

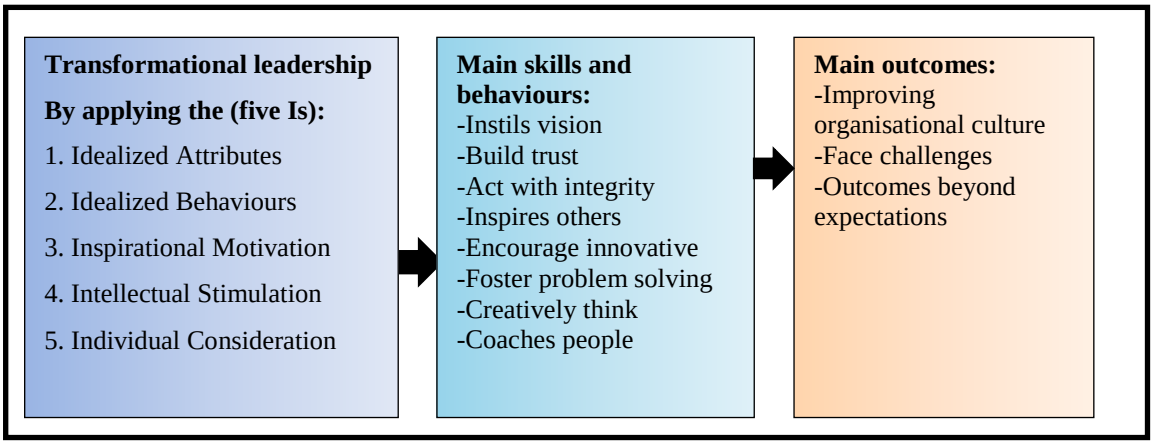


Figure 3.3: The effect of transformational leadership on organisations.

3.8.3. Transformational change in organisations

The last section mentioned that transformational leaders utilize their influential qualities to change cultures. Therefore, organisations are in demand of effective leaders to facilitate change. Those leaders have the required qualifications and skills to manage change by influencing others to espouse this change. The organisation's members normally resist changing because they are linked to old systems and processes. Practices of leaders can work positively to convince subordinates with the need of change (Kotter and Heskett, 1992). In addition, leadership behaviours affect change, "*The behaviours of top-level leaders become symbols of the organisation's new culture*" (Bass, 1999). The role of leaders in change is vital especially with dealing with organisations with big size. Thus to have effective change, leadership behaviours and practices become 'symbols' for others inside organisation to imitate and stories are created around the leader while developing the new culture.

In many studies, transformational leadership was reported to be effective in changing organisational culture (Swanepoel *et al.,* 2003). This is because of its ability to influence and inspire towards peers, subordinates and other parties outside the borders of the organisations. Setting a vision for change is another feature of transformational leadership, by which change is implemented through time. Transformational leaders are committed to face challenges of change and transform difficulties to opportunities to reinforce organisational situation. Bass (1993) found that wise leader can change culture of organisations with understanding the past. From the revision of the past, they find principles, strategies and instructions that worked before and should be maintained at the current time. The mistake in organisational change is found in separation an organisation completely from its past; linking with the past can make effective change.

Transformational leaders instil their visions and beliefs within the organisational context they work in and promote people in the long-term to reach the organisational goals. A key feature found in transformational leaders is that they intend to understand cultures before the change then instil their visions into values and practices of the organisation's members (Bass, 1995). The effect of transformational leaders in changing employee's attitudes extends the borders of the organisation to the outside.

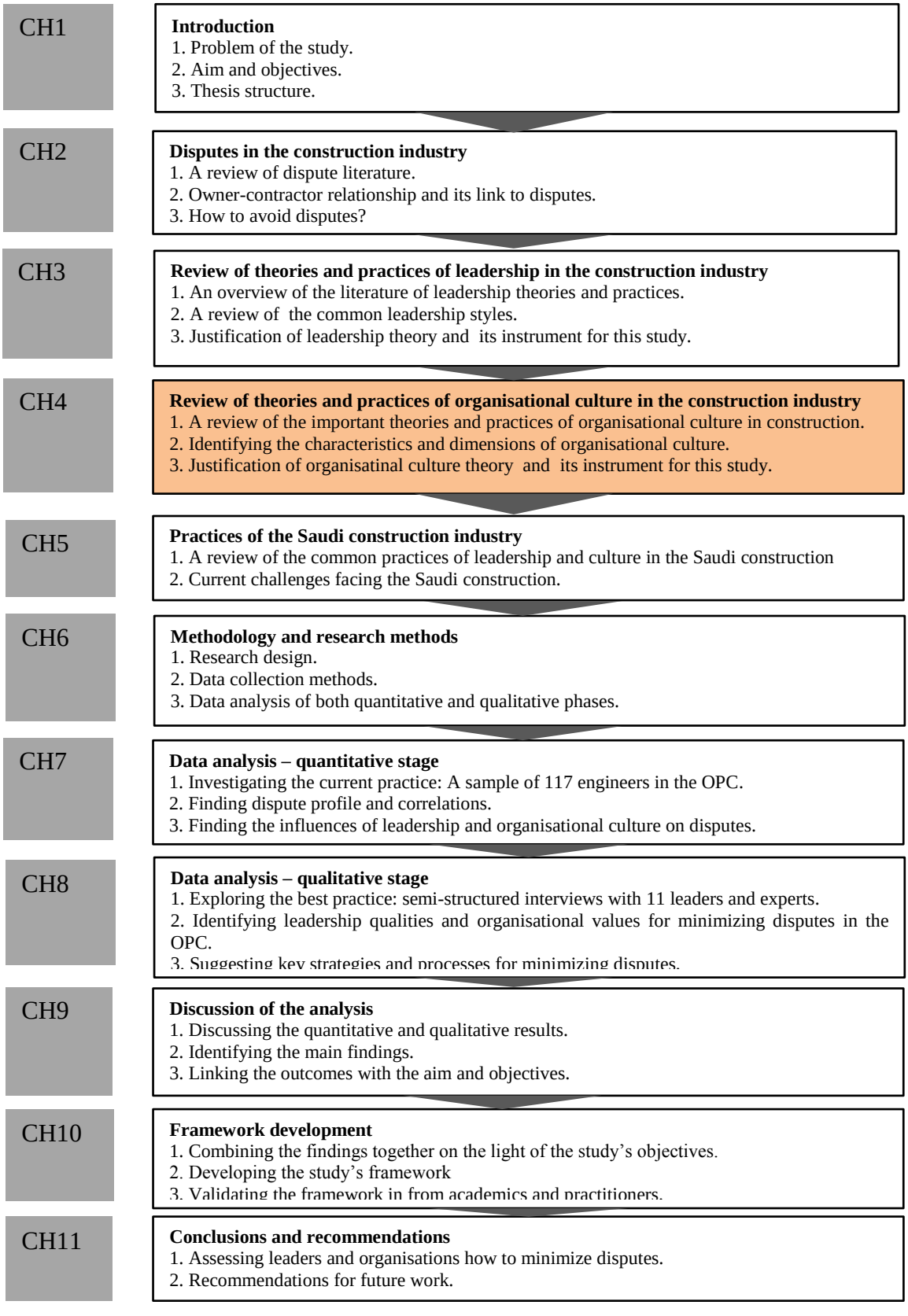
For instance, Menguc *et al*. (2007) reported that transformational leaders were positively affected by external orientation of organisation's employees.

3.9. Summary

Leadership is considered as a critical success factor for construction organisations in today's turbulent and complex economic that have uncounted number of challenges. Therefore effective leadership is of importance to be incorporated in construction context. However, less attention is found in construction literature to the significance of leadership. To cope up with the continuing challenges, a real change should be encountered to instil qualified leaders that are capable to lead construction organisations toward better results. Current leaders have to improve themselves with the needed training and experience that can help them to manage people and projects. Also they have to know how to avoid conflicts and disputes taken place and to set proper strategies for this task.

In this chapter, an overview was made on leadership theories and the common leadership styles associated with construction industry. As linking the main parts of the study, aspects associated with leadership were discussed namely disputes and organisational culture. The aim was to have an understanding to assess the theoretical framework of leadership. An emphasis was made on the full range leadership theory through an investigation on its main characteristics. The MLQ instrument was also discussed through the rational for its adoption in this study. The next chapter gives some insight about the concept of organisational culture and its employment in construction organisations.

4 Chapter four - Review of theories and practices of organisational culture in the construction industry



4.1. Introduction

Organisational culture is a serious issue of concern for every organisation to attain organisational goals without any hindrance. In organisations, people of different cultural background work together having different beliefs, myths rituals and knowledge. They interact with each other forming a pattern of behaviours, attitudes and practices demonstrated in organisational culture (Schein, 2004).Organisational culture is a key ingredient that differentiates the successful firms from the others, because it is the major distinguishing feature, the most powerful factor, and the most competitive advantage in gaining success (Cameron and Quinn, 2011). One of the major reasons for the widespread popularity and interest in organisational culture stems from the argument (or assumption) that certain organisational cultures lead to superior organisational financial performance (Ogbonna and Harris, 2000).

Organisational culture is characterised as the visible and invisible culture under which all aspects related to the culture are included. Visible culture includes language, myths, rites, behaviour and all external things (clothing and building); whereas, invisible characteristics consider the perception of business people, faith, common values and norms (Fard e*t al.,* 2009). Overall, organisational culture plays a vital role in controlling individuals' behaviour, beliefs and understanding, which in turn affect the organisational effectiveness by concerning employee learning and job satisfaction.

Construction organisations like other business firms have been affected by external and internal factors which in turn have resulted in different and complicated cultures. Global economic changes and industry turbulence have an increasingly influence. Other internal factors like leadership, organisational performance and people's behaviours and motivations have also affected construction organisations. Therefore organisational culture developed in construction organisations needs to be fully understood in order to meet current circumstances and challenges.

The main purpose of this chapter is to present organisational culture in construction industry. The introduction section gives an overview of organisational culture, which is the crucial area of concern for competitive efficiency and sustainability. The conceptualisation of organisational culture includes various concepts of the main definitions of this concept found in literature. The review includes highlighting the main theories organisational culture's and instruments through mentioning differences and applications among them. A number of models are discussed to reveal their implication to determine the cultural differences. Competing Values Framework CVF is one of the models used under this study to assess the profile of organisational culture. Based on this model, Organisational Culture Assessment Instrument OCAI is utilized to identify the types of organisational culture. Both CVF and OCAI are detailed here.

Further, the section of reviewing organisational culture in the construction industry depicts viewpoints of different scholars related to this topic. This section is quite significant to know the culture in the construction sector and its importance in completing projects within time and cost limits. Various differences of organisational culture in public and private construction are presented in respect to various areas, like level of bureaucracy, organisational commitment, effect on pay dimensions and employee involvement.

Finally organisational culture links to the main research factors are highlighted including disputes, leadership and change in construction industry. Different ways to improve the organisational culture are discussed, through which great improvement can be brought effectively. The conclusion section reveals important findings based on the discussion made in this chapter.

4.2. Conceptualization of organisational culture

As mentioned in the previous section the concept of organisational culture has attracted more concern among academics and practitioners. The efforts of researchers to understand organisational culture develop through the aggregation of different organisational aspects/concepts. Cultural studies among nations and organisations are the ground that the concept of organisational culture was built on. To improve

understanding it is better to highlight important early cultural studies before defining organisational culture.

4.2.1. The concept of culture

Defining culture is important since it is strongly related to the behaviours and practices of individuals and organisations. Leaders who made decisions in organisations without acknowledging the influence of culture may face undesirable situations. Most of conflicts and disputes that emerged between individuals in different organisations have relationships with culture in one way or another. Understanding cultural factor enables leaders to motivate people and inspire them and more importantly to lead organisations in normal and difficult situations to achieve the attained goals. Another advantage of cultural awareness is its role in reducing incidences of conflicts and disagreements among team's individuals.

The concept of culture in Webster dictionary defined as "*a set of mores, values, attitudes, beliefs and meanings that are shared by the members of a group or organisations.*" Another definition found in literature is "*the collective mental programming*" behaved or practiced by people in one grope or community. Hofstede (1978-2010) presented an interesting view of culture as an 'onion shape' where he divided culture in to four layers start from the core to the surface, Figure 4.1. These four layers are values, rituals, heroes and symbols (Hofstede, 1997). The deeper the layers the more difficult to change; this means that core values represents the most difficult component of cultural change while changing symbols is easier.

Symbols are referred to visible objects like words or pictures that have meaning to this culture. Symbols are referred to signs of specific organisations; it can be the dress of an organisation, logo of BMW and Microsoft. Heroes are persons who are recognised as role models for particular culture. These people have influenced national culture, societies or groups in reality or imagination. Rituals are behaviours or activities that are considered as essential in the social context like behaviours of respect toward others or

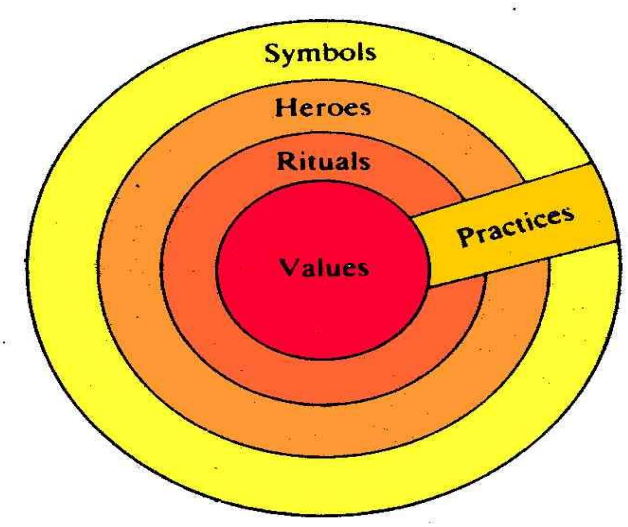


Figure 4.1: Hofstede's onion layers of culture, (Hofstede ,1997).

religious practices in specific cultures. Although these rituals are visible to others their meanings are not necessarily known. In the core of culture values are found, defined as "*broad tendencies to prefer a certain state of affairs over others*" (Hofstede, 2005).

4.2.2. Major cultural studies

In 1968, Geert Hofstede conducted what is still today known as the most important cross-cultural value study in the field of different cultures and their approach to management. Hofstede's research (1978, 2010) indicated that managerial and organisational practices may be different in countries that belong to different clusters based on cultural similarities. Hofstede identified four dimensions of culture drawing on a large sample of 116,000 employees of IBM in 72 countries. Based on the previous study, Hofstede (2001) concludes that the four dimensions used to differentiate between cultures are: power distance, individualism versus collectivism, uncertainty avoidance and masculinity versus femininity. Major findings of Hoftede's work revealed that organisational culture is described as holistic concept that has links to anthropological science and also has a social nature (Hofstede, 2005).

In another prominent study, Schein (2004) divided the levels of culture in every society into three layers as shown in Figure 4.2. The first layer in the ice bridge is 'artefacts' which is seen by others while the second layer is 'espoused values' such as goals and strategies and these can be invisible or under water. The third layer is 'basic underlying assumptions' like taken-for-granted beliefs and thoughts and these are unconscious and deeply existed in the organisation. However, Brown (1995) suggested other layers of cultures as values and missions are found in the outer layer, beliefs are in the middle and the inner layer consists of organisational characteristics related to life and people.

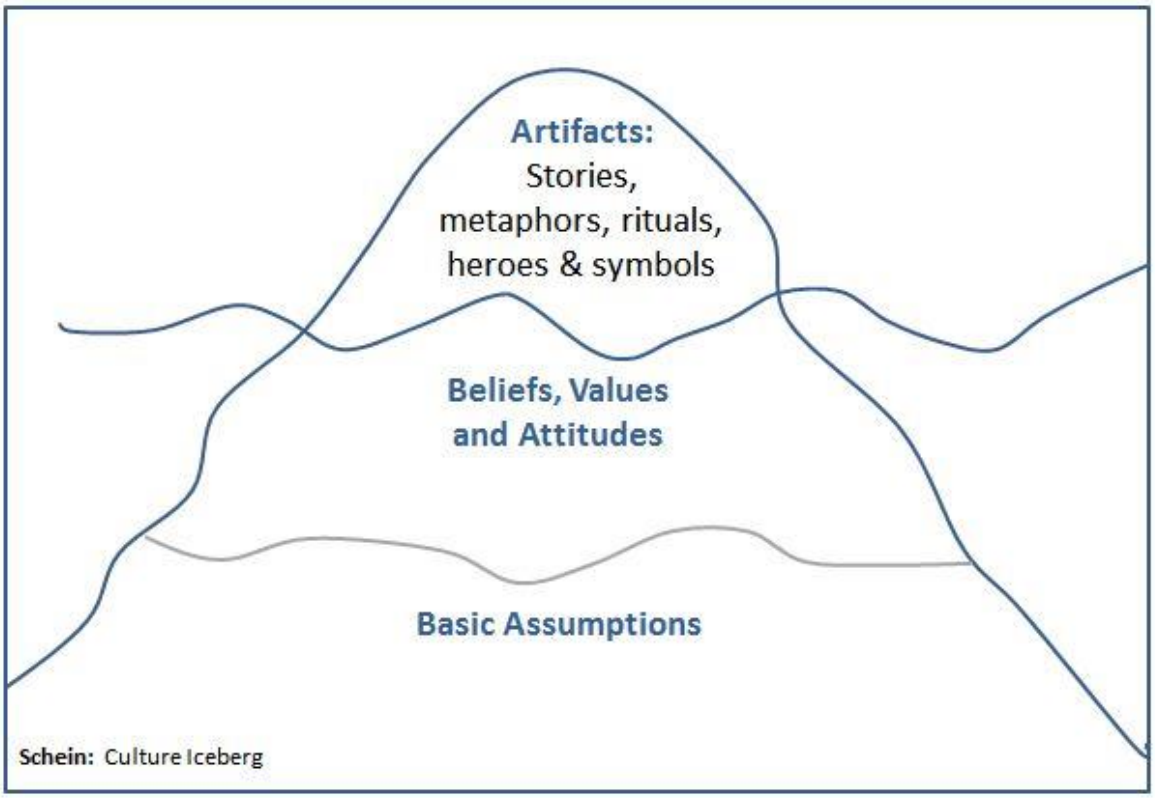
In cultural research, a misunderstanding is associated with the terms of culture like beliefs, values, attitudes and assumptions as illustrated in Figure 4.3. It would be quite informative to briefly show the basic differences between them. Beliefs describe the information that a person has about something. Beliefs build knowledge about a person, organisation or behaviour. They are learned and gained from experience or observations (Williams *et al.,* 1993). These beliefs are based on existing experience or knowledge. For example the beliefs of an employee towards the organisation have to be upon real experience to be considered as beliefs meaning that the beliefs of new employees are not credited because they are changeable. Values and attitudes are used interchangeably due to similarities between both perceptions. Values can be feeling like satisfaction or a since of obligation, like what is preferred or not preferred, philosophies or principals. Values and attitude can be learned based on beliefs. The difference between values and attitudes is related to the existing experience. Values are based on direct and existing experience while attitudes are not necessarily based on existing experience. Assumptions, on the other hand, are realities or activities that found in members towards the industry, time, space etc. (Schein, 2004). They are 'taken-for-granted' beliefs towards people, attitudes and organisations. Assumptions are rooted in people mentality and cannot be changed easily. Thus basic assumptions regarding the organisation 'resist to change' and leaders who are charged for change need to care more about the assumptions of organisation's members. Finally artefacts are results of values and assumptions demonstrate tangible and visible nature (Schein, 2004).

In this regards, organisational cultures describe the prevailed culture associated with an organisation. Another description of culture can be shown in 'subcultures'. Subcultures describe unit-culture or mini-cultures which can be a department or a unit in an organisation (Sathe, 1983). These smaller communities in the organisational context share similar values or features like educational background or experiences that differentiate them from other groups inside the organisations. Both organisational culture and corporate culture have similar uses in business. However, corporate culture refers conceptually to the 'corporation meaning' of an organisation used commonly in profit-organisations. Corporate culture is a system of processes and practices that drive competitive advantages for a company revealing that it is hard to build and stained. Corporate culture is manifested in big names that have long record of achievements and success making it hard to be imitated.

4.2.3. The definition of organisational culture

Organisational culture as a scientific subject has emerged in the 1980s through several studies with different perspectives. Hofstede (1978) was one of the early scholars who devoted his efforts for deep and long research on culture and organisations. His cultural theories were the base for numerous number of organisational culture's studies. Attempts to define organisational culture showed divergence in the concept. While Hofstede (1997) saw it as the collective mental programming that distinguishes the members of one organisation from another, Schein (2004) defined it as "*a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration that has worked well enough to be considered valid, and therefore, to be taught to new members as the correct way you perceive, think, and feel in relation to those problems*."

Denison (1990) was also one of the prominent scholars in organisational culture research. He suggested another view to its concept as "*the underlying values, beliefs and principles that serve as a foundation for an organisation's management system as*



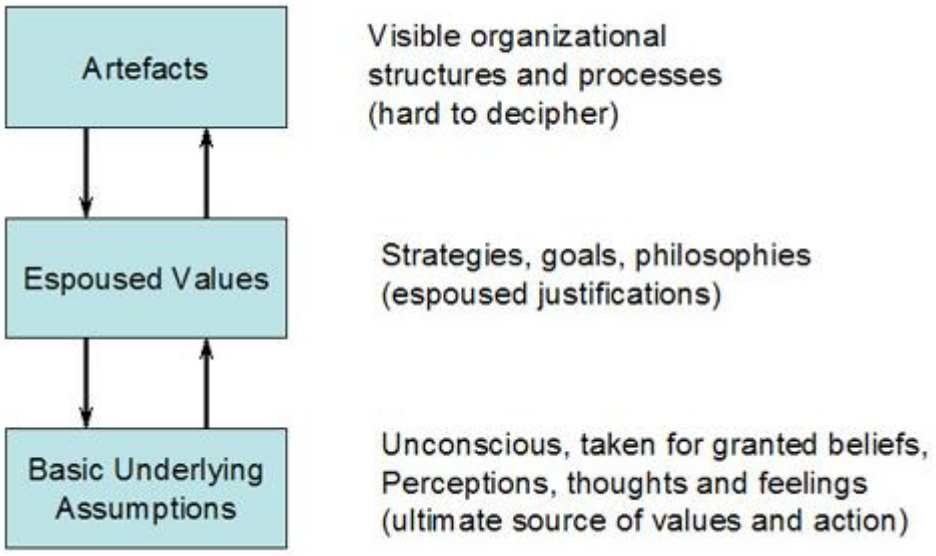


Figure 4.2: Levels (layers) of culture, (Schein, 1985).

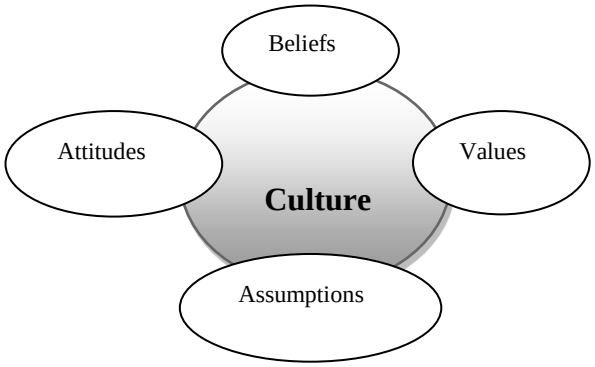


Figure 4.3: Cultural terms used commonly in literature.

well as the set of management practices and behaviours that both exemplify and reinforce those basic principles " (Denison, 1990). On another view to this concept, Kotter and Heskett (1992) suggested that organisational culture can be described as the style and behaviours of an organisation and in turn the organisation reflect its culture on members' behaviours. In a later time Cameron and Quinn (1991) brought a wider definition of organisational culture to include values, assumptions, expectations, and collective memories. Although researchers attempted to define organisational culture, yet no consensus found in literature. In this study the definition of Schein (2004) is adopted because of its demonstration to the aspects of organisational culture in an obvious way especially for an environment experiencing lack of knowledge regarding this concept such as the Saudi public construction. The researcher in this study is needed to explain this concept to the respondents in a simple manner.

4.2.4. The importance of organisational culture

From the definition of organisational culture it can be seen that it is rooted in the values and beliefs of organisation's members. Rahman and Kumaraswamy (2003) argued that key success factors for construction companies are the 'flexible organisational culture' of the organisations involved, so that they can both contribute and adapt to the emerging

project culture. Moreover, it has been proved that organisational culture profoundly has an explicit impact on performance and effectiveness (Cameron and Quin, 2011; Denison's, 1999; Xiaojuan, 2007). This will, in turn, open up the organisations to absorb back positive culture-building elements that will collectively feed into an enhanced performance-oriented construction industry culture. However, many researchers attribute success, good performance, and organisational effectiveness of construction organisations to their strong organisational culture (Deal and Kennedy, 1982; Schein, 2004; Barney, 1986; Hoecklin, 1996; Denison and Mishira, 1995). It is argued that organisational culture will remain linked to superior performance only if the culture is able to adapt to changes in environmental conditions (Denison, 1990).

The culture of organisation is the association of eight cultural values including experimentation, autonomy, pro-action, trust, confrontation, openness, authenticity and collaboration (Sharma and Sharma, 2010). Close association of all these individual aspects with the existing organisational environment is important, so that positive environment can be built up. Positive environment promotes productive organisational culture and work environment through fostering positive behaviour and attitude of individuals towards work and other employees. Positive relationship contributes to business performance in all aspects including operational efficiency, employee participation and profitability as a whole. Organisational culture is linked directly with the positivist concept that emphasis on bringing people of different cultural environment closer for accomplishing the defined goals and objectives with full employee support, motivation and concentration. This reveals that organisational culture fosters positive behaviour of employees which is considered as one of the important aspects to turn back confrontation.

The importance of this concept in this study comes from the main aim of employing organisational culture in the conducted investigations. It was believed that organisational culture has an impact on current practices of public construction. Therefore to explore the roots and sources of disputes in this context, a researcher must take this concept into consideration. Thus organisational culture is incorporated in objectives I, II and III.

4.3. An overview of the main theories of organisational culture

Although vast body of research has been published regarding theories of organisational culture, this literature has a shortage of 'deep' investigated research. That is due to the maturity of organisational culture research which emerged in the 1980s leading to this limitation. Brown (1995) draws attention to the lack of organisational culture research by saying that "*current interests in organisational culture stems from at least four different sources: climate research, national cultures, human resource management and from conviction approaches which emphasise the rational and structural nature of the organisation to be unable to offer a full explanation of organisational behaviour*." Importantly, cultural differences are different from one country to another, from one organisation to another; this makes organisational deep research more difficult. Scholars and researchers have attempted to understand and describe the concept of organisational culture from different perspectives. Although human being norms, beliefs and values are similar, they show differences related to the culture prevailed, and scholars referred to this prevailed culture factor when inter-relating organisational culture.

Both Hofstede's work on the national culture and Schein's work on levels of culture were the bases of the coming theoretical developments of organisational culture. Schein (1985) identified the three levels of culture from invisible to visible as 1) artefacts, 2) espoused values, 3) underlying assumptions. Schein's perspectives resemble a structural view of organisational culture in describing the orderly levels while Hofstede demonstrated a cross-cultural view in mentioning the influence of national culture on organisations. He categorised national cultures in terms of power distance, uncertainty avoidance, and individualism-collectivism and masculinity- femininity. Nevertheless, after these two major studies, organisational culture was still not fully conceptualized.

4.3.1. Denison's theory

Denison's theory which found in 1990 interprets organisational culture into four hypotheses namely consistency, mission, involvement/participation and adaptability as

shown in Figure 4.4. Based on cultural perspectives, consistency and mission are concerned more with organisational stability while involvement and adaptability are related to change. Denison's perspective took into consideration both external and internal factors affecting culture in order to create a balance that sustains organisational development.

4.3.2. Handy theory of organisational culture

Handy (1999), has looked to organisational culture from another angel when he linked the categorization of organisational culture to leadership type. By making more improvements on the work of Harrison in the year 1972, he suggested four types of cultures as shown in

Figure **4.5**, namely, power culture, role culture, task culture, and support culture. Handy's theory enhances the idea that culture is highly linked to the structure of an organisation. This manifested in the concept that organisation is a 'set of roles' reinforcing the importance of roles in achieving effectiveness with minimum dependency on policies and rules.

4.3.3. Competing Value Framework

Another important theory introduced by Cameron and Quinn in the year 1999 demonstrating organisational culture's dimensions based on Competing Value Framework, Figure 4.6.The theory identified four types of culture: clan, adhocracy, market and hierarchy. Although Cameron and Quinn concerned with external and internal factors, similarly, as Denison's theory, they broadly determined cultural influences and differences found in the identified types of culture. This theory displays an effective mechanism to describe organisational culture through cultural core values. It can assess leaders and organisations not only with understanding organisational culture's types but more than this in providing valuable information related to organisational strategy, leadership, decision-making process, employee's motivation, organisational communication (Cameron and Quinn, 2011). More discussion about the characteristics of this theory is presented in the next sections.

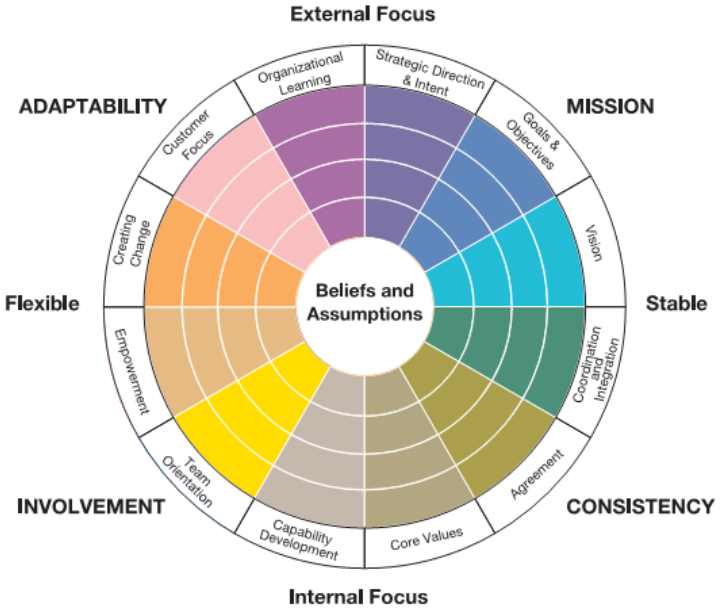


Figure 4.4: Denison's Organisational Culture Model, (Denison, 1990).

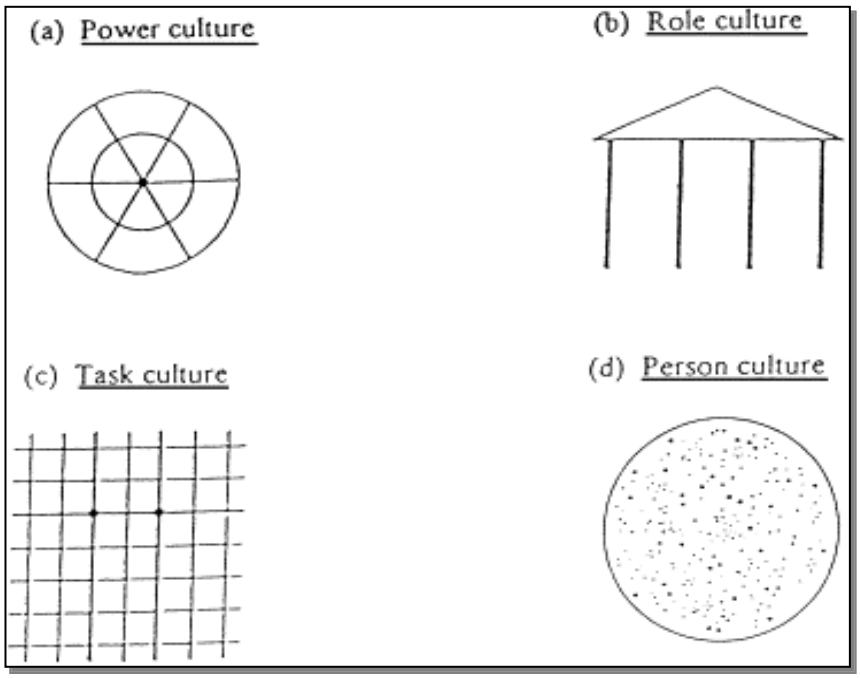


Figure 4.5: Handy theory of organisational culture, (Handy, 1999).

Figure 4.6: Competing Value Framework CVF, (Cameron and Quinn, 2011).

4.4 Main organisational culture instruments

Organisational culture's categorization can be done by the use of existing models, but for the measurement of different culture types to decide which cultural trait is better, scholars and researchers needed strategic tools. Earlier, the measurement of the cultural traits was based on the popularity of the culture and its acceptance across different organisations. In the process of measuring organisational culture, numerous instruments and tools were introduced by researchers and scholars (Barley *et al.*, 1988; Muller, *et al.*, 2008). Various instruments for measuring organisational culture are found in literature.

4.4.1. Hofstede's four-dimension model

One of the early instruments to profile organisational culture is Hofstede's four dimension model which was proposed in 1980; it is commonly applied in organisations

and management research works for measuring the organisational culture. The four culture dimensions of Hofstede model are power distance, uncertainty avoidance, individualism and masculinity. All these dimensions of culture aid in determining the culture in light of power, level of threat by uncertain situations, individualism and dominant values. Moreover, this tool makes it easier for firms to determine culture from the point of financial status (Yusoff, 2011).

4.4.2. Organisational Culture Profile OCP

Organisational Culture Profile OCP was introduced by O'Reilly *et al.* in the year 1991 to measure organisational culture. It presents the relationship between values reflected by employees of an organisation and the organisation as a single entity. This particular tool focuses on value sharing between the employee and the organisation. Values reflected by employees and organisations need to be on the same page, for a sustainable growth organisations. Although it is a good tool for measurement, few limitations are reported in its measurements. The tool assumes that only those organisations that possess productive and profitable results have matching set of values between employees and their organisation. This particular approach weaknesses the ability and efforts made by the staff to affect the organisational culture of a firm. In other words the qualities and values of organisation's members are underestimated to make a change in the organisations. This can be more obvious in changing the organisational culture of a weak organisation to be more effective, this model admits that only profitable organisations can be changed.

4.4.3. OCTAPACE instrument

OCTAPACE is another organisational culture model is used to assess organisational cultural profile. It was firstly developed by Pareek (1973). This 40-item instrument examines eight values to measure different attributes of organisational culture, including Openness, Confrontation, Trust, Authenticity, Proactively, Autonomy, Collaboration, and Experimenting. The name OCTAPACE comes from these eight values. By using this model, it will be easy to identify the items valued for attaining

success by organisations and how the defined values are shared (Sharma and Sharma 2010). OCTAPACE model is useful to determine the level of association between cultural values and organisational effectiveness.

4.4.4. Denison' model

Denison organisational culture model is another valid tool of evaluating the organisational culture, which was developed by Daniel Denison in 1980s. The main focus of this model, Figure 4.4, is to identify the impact of defined cultural traits on the substantial level of performance of organisations. The four major cultural traits involved by Denison in this model, as indicated in Figure 4.6, are mission, adaptability, consistency and involvement, which measure their impact on quality, profits, return on assets, sales growth, satisfaction of employees and overall performance as a whole (Mobley *et al.*, 2005). Implication of this model is advantageous for organisations to look after all areas, from customer focus to the capability development and strategic direction.

4.4.5. Schwartz's model

Schwartz model of organisational culture was developed by Schwartz (1994) based on the study of Hofstede (1980). This model focuses on the cultural value to measure the relationship between cultural factors and personality in different organisations. The basic feature of Schwartz model is its two dimensions, first dimension is conservatism versus autonomy and the second dimension is self-enhancement versus self-transcendence. The human values given by this model reflect "*universal requirements of human existence to which all individuals and societies must be responsive*" (Schwartz, 1994). Schwartz's model concerns about harmony and order and to achieve this it works toward matching personal values with organisational values. As per this model, assumptions for work and life in two cultures are dissimilar. Likewise, the culture of US (Western Countries) is characterised as short term orientation, individualism, autonomy, small power distance and self-transcendence; whereas, the culture of China is characterised as strong uncertainty, conservation, large power

distance, collectivism and conservation (Rose *et al.,* 2008). With the use of this model, it will be easy to determine the culture and performance interrelationship.

Organisational Culture Assessment Instrument (OCAI) is another instrument that is used in profiling organisational culture based on the CVF. This instrument is pivotal in this study for investigating organisational culture. Therefore the next section discusses this instrument and its theoretical framework in more details, more details about this instrument is shown in Appendix A.

4.5 Organisational Culture Assessment Instrument (OCAI) - (Based on the Competing Values Framework CVF)

Competing Values Framework CVF is a theoretical model that was developed by Quinn and Rohrbaugh in 1983. This particular tool introduces some 'competing values', which are arranged in a particular manner and organisational cultures is measured against them. There existed a similarity between the later attempt of Quinn and McGrath (Quinn and McGrath, 1985). The similarity was in the competing values, in which the focus shifted from people to organisation, and this was represented on one of the axis. Another axis represented the nature of the culture from being stable to flexible (Cameron 2004). Four different quadrants are addressed through this instrument namely, clan culture (focused on person and flexible), adhocracy culture (focused on organisation and flexible), market culture (focused on organisation and stable) and the last one, hierarchy culture (driven by people concern and stable), see Figure 4.7.

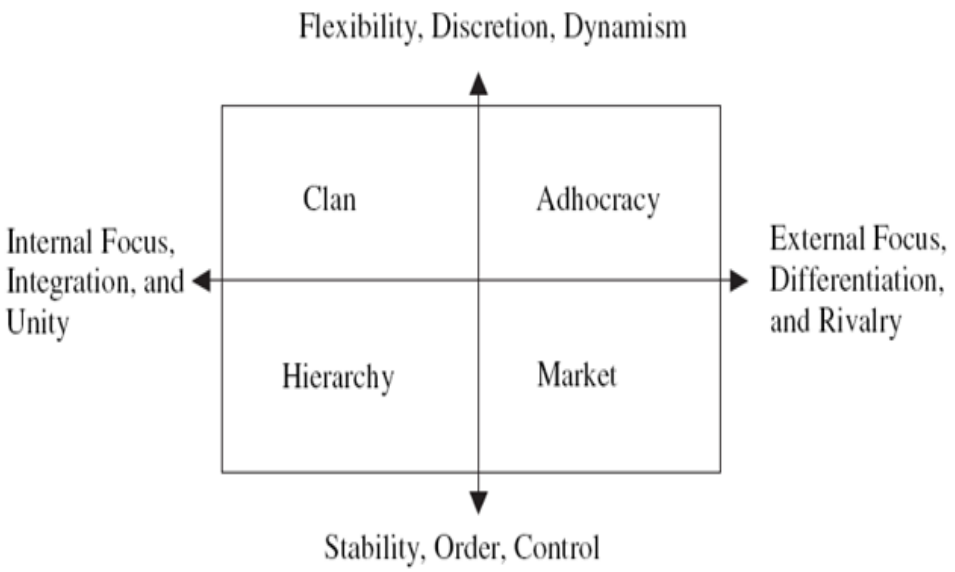


Figure 4.7: The four quadrants of used by the OCAI, Cameron and Quinn (2011).

Organisational culture has evolved into a significant aspect in the management of an organisation, irrelevant of the working domain. Organisations have understood the value of organisational culture in its sustainable development. It is referred as the learned outcome of combined experiences of individuals and groups in developing an effective behaviour in an individual (Dasanayaka, 2009). In the process of evolution of an organisation, the values obligated by an employee and the organisation as a single entity should be on the same page. This further leads to the requirement of processes or tools to measure the level of organisational culture. In the same context, a tool was developed by Quinn and Rohrbaugh, in the year 1983. This tool is known as Competing Values Framework CVF and can be used through a systematic approach of plotting the unlike aspects of organisational culture against an array of competing values.

4.5.1. Main characteristics of the OCAI

Organisational Culture Assessment Instrument (OCAI) is an instrument to assess organisational culture based on the CVF, (Cameron and Quinn, 12011). Under the OCAI, organisations have the opportunity to arrange the existing values against the values that employees of the organisation like to possess, see Appendix A. The OCAI uses a questionnaire to establish a culture profile. This cultural profile can be expressed

as a manifestation of four types of organisational culture that correspond four Competing Values. The questionnaire is used to collect data to decide the placement of an organisation as subdivided into six different clusters. The scores obtained by each organisation are totalled and the averages determine the culture type, which helps in better interpretation of the collected data (Cameron and Quinn 2011). The OCAI method argues that every organisation has its own mix of organisational culture and this mix can be identified through completion of a short questionnaire (OCAI Online 2010). At present, this is a common method of identifying the organisational culture and approximately 12,000 companies are using it worldwide.

The authors believe that these techniques provide researchers and practitioners with a set of instruments to evaluate organisational culture, and the most prominent among them is the OCAI instrument. OCAI is characterised as being practical, involving cultural aspects and manageable. The process uses quantitative, as well as, qualitative methods to address different organisational cultures in the process of measuring their traits (Cameron and Quinn, 2011). Among all the aforementioned measurement techniques, the OCAI has few outstanding advantages to support the cause of the organisational comparison. The measurement further analyses different aspects of culture followed in an organisation, and plot it graphically according to the traits of four quadrants (Muller *et al.,* 2008).

4.5.2. Cultural types based on CVF

The competing values involved in the OCAI move focus from individuals to organisations as an entity. The stability of the culture was considered on the axis, which varied from being stable to flexible. This approach divided cultures into four which are clan culture, adhocracy culture, hierarchy culture and market culture, Figure 4.8. These cultures have different characteristics and flexibility levels. The description of distinguishing characteristics of these four cultural aspects has been mentioned in paragraphs below:

Figure 4.8: Components of cultural types of CVF, Cameron and Quinn (2011).

4.5.2.1 Clan Culture

Among the four different quadrants, clan culture primarily focuses on the development of individuals in an organisation through individual commitments. The culture also focuses on the characteristic development of team members through the team work and loyalty programs. Empowerment and involvement of a team member in different activities of an organisation is given the centre stage in this culture type. The work environment in clan culture is given greater emphasis to increase the internal bonding and cooperation in the team (Muller, *et al.*, 2008). The culture also focuses on the maintenance of the internal environment of an organisation by demonstrating flexibility and rational concern towards personnel at different levels. A sensitive approach in dealing with customers is also a part of this culture (Dasanayaka, 2009). Thus, the clan

culture principally revolves around the development of an individual as an effective and successful team player in the line of improving the individual, as well as, team performances.

4.5.2.2. Adhocracy Culture

Adhocracy culture followed in different organisations primarily focuses on the development of creative approach and entrepreneurship traits. This culture is identified through its dynamic and creative characteristics. It refers to a cultural trend in which, personnel in the organisation opt to stretch their abilities and take risk for the sustainable success of the organisation on the whole. The most prominent part in this cultural type is the binding nature of innovation and experiments that hold members of the organisation in the process of sharing a common goal (Cameron, 2004). The culture completely focuses on the utilisation of new and appealing knowledge in line of developing new services and products for customers. Important characteristics of this cultural trait is the ability to adapt to new changes and accepting challenges in the due course of rapid and sustainable growth by acquiring efficient resources. Thus, the adhocracy culture primarily reflects the use of approaches involving risks, anticipation and innovations.

4.5.2.3. Hierarchy Culture

The cultural trait of an organisation, organised in the lower left quadrant, is hierarchy culture. The primary feature of the culture is a formalised and integrated work environment, which is regulated by different procedures and pre-defined processes, which define the work to be done by people in the organisation. The roles of efficient leaders and managers have a significant place in this cultural trait. Coordination and organisation of the whole work environment remains an important aspect of the culture. In the longer run, organisations under these cultural traits are more concerned about efficiency and stability, which could be attained through strategically thought predictions (Cameron, 2004). Thus, the core feature remains the organisation being

more structured, consistent and reliable. This cultural trait is adopted by organisations purposing to meet different challenges in line of attaining an effective, dependable and flawless output (Alas *et al.,* 2011). Regular and smooth operation of work in the organisation remains a core concern under this cultural trait.

4.5.2.4. Market Culture

Market culture can be observed in an organisation, whose main aim is to concentrate on the external maintenance of the organisation in the line of a defined need of control and stability (Dasanayaka, 2009). The organisations coming under this cultural category function like market in their own ways, and they are regulated towards the external environment rather than the internal environment or affairs. The core concern is the proceeding with external entities related to an organisation, who can be different suppliers, clients, contractors, unions, retailers and many more. These organisations tend to create situations of competitive advantage by concentrating mainly on the economic transactions with the aforementioned external entities. Exchange among organisations and entities takes place through monetary mechanisms, like economic exchanges, sales and financial contracts (Muller, *et al.,* 2008).

Being competitive, as well as, productive remains the main thought of organisations under this category. Leaders and managers in these organisations have the main task to motivate and take the whole organisation towards the shared goals of productivity, successful outcomes and profitability, (Alas *et al.,* 2011). The construction organisation undertaking the idea of addressing the internal factors are more interested in the procedure by which the work is being done along with the moral of employees, whereas organisations concentrating on the external factors show interest in the development and retaining new customers and market shares. Issues' regarding competition is also undertaken under the external entities (Schimmoeller, 2006).

As shown in Figure 4.7 and Figure 4.8, the Competing Values flexibility and control lies on the vertical axis and other two values' internal focus and external focus lies on the horizontal axis. These two axes, along with four Competing Values of the OCAI

method, classify an organisational culture into four quadrants, including Clan, Adhocracy, Hierarchy and Market culture. The method cites empirical evidences to clarify that an organisation rarely has one culture type and in most of the cases, it embraces the attributes and mixture of all four types of culture (Tureac, 2005).

It can be summarized from discussing the OCAI that this method helps in determining the blend of four types of culture, and highlights the extent and impact of each type of culture. While assessing the type of culture an organisation has, respondents or employees are supposed to take the test with the help of formulated questionnaire. The score of this test is divided into four quadrants as per the exiting elements of culture. The scores of this test assist in the identification of the extent by which each of these four culture types dominate or influence the present organisational or team culture.

4.6. Organisational culture in construction research

As mentioned in section (4.2), the concept of organisational culture was first emerged in the 1980s when it was introduced by various academic and business organisations. Construction organisations were among those who incorporated organisational culture. A number of studies have been conducted on organisational culture in construction industry. It was revealed that organisational culture is a key influential factor that was correlated to other factors like organisational performance, innovation, Total Quality Management TQM, quality outcomes and other external factors. Under this, relevant academic sources were reviewed to demonstrate the importance of this construct in construction projects and to show the positive implications of its employment. Also relations with other factors like innovation and effectiveness are also presented.

In this relation, Oney-Yazic *et al.* (2006) have reflected that culture plays a vital role in the construction industry across global business environment. Good cultural characteristics now become prerequisite for the business survival in the competitive environment just like other objectives, including high financial returns and continuous profits. It is because differences in culture cause obstacle in attaining the end goals due to the high possibility of misinterpretation and conflicts. Adjustment with the prevailing

culture and organisational goals/culture is significant to align different cultural values collectively (Oney-Yazic, *et al.* 2006).

In the same context, Chan and Tse (2003) have defined considerations related to the cultural aspects in International Construction Contracts. It was identified that multinational participants are involved in international construction projects that possess distinct background in relation to the economic, cultural, political and legal aspects. It has been inferred by the authors that culture is the most serious concern and issue in managing construction projects at the international level as differences in culture affect the managerial work. The issue of cultural differences requires a good attention to build collaboration among multi participants, organisational objectives and project definition. It is because cultural differences separate employees in different groups, which affect the performance (Chan and Tse, 2003).

From the viewpoint of Coffey (2010), there is a great demand of having good knowledge of organisational culture in the construction industry, so that required changes can be brought effectively in the prevailing culture. Importance to organisational culture in construction industry supports firms in attaining the quality standards along with customer loyalty and satisfaction. This shows that organisational culture promotes employees' positive behaviour and attitude towards work, and stimulates them to work in the clan culture environment. It ensures all employees who are from different cultural background to put efforts towards attaining common goal that is sustainable and effective. In construction industry, people from different cultural background work together to meet project results and thus, it is fruitful to build integrative and unified organisational culture without any sort of discrimination for bringing closeness among the workforce. It is critically reviewed that organisation culture gains its importance in construction industry after changes in the organisational climate and internationalisation (Coffey, 2010). Thus, it has been analysed that organisational culture is crucial for motivating employees to work in the common direction with the competitive efficiency.

In the same regard, Igo and Skitmore (2006) examined the organisational culture of engineering, procurement and construction management consultancy in Australia. The dominant culture found was market culture and the respondents chose (employee focused culture) as the most desired form. This result indicated that employees need the people-oriented leaders rather than leaders with task-driven attitudes. The current market-oriented culture did not coincide with the preferred employee's expectations.

Cheung *et al.* (2010) tried to develop an organisational cultural framework in construction. In a study that took place in Hong Kong, a list of the artefacts in organisational culture was identified by reviewing literature. By interviewing professionals, the determined artefacts form organisational culture factors. The highest ranked factors were namely, 'goal setting and accomplishment' and 'team orientation'. Although trust and cooperation are highly needed in construction contracting (Latham, 1994; Egan, 1998; Green and May, 2003; CIRC, 2001), it had not been highly ranked in this study for contracting firms of Hong Kong. By studying the culture of the Turkish construction sector, Gritli *et al.* (2012) examined the relation between leadership and organisational culture. Referring to theories saying that both leadership style and organisational culture are highly correlated, the results supported this suggestion. To some extent, a significant relation was found between leadership practices and cultural profiles. Using Multinomial Logistic Regression, it was found that contractor's managers were characterized by certain cultural attributes and effective leadership styles that leaded eventually to success.

Researchers have examined the profile of organisational culture in various countries where cultural differences and changeable project's circumstances prevailed. Zhang and Liu (2006) investigated the Chinese construction companies through developing a model for the culture-effectiveness relations. Organisational culture was examined for construction organisations to identify the prevailed profiles. Chinese construction organisations were associated more with cultural differences at the corporate level that foster changes in practices of the existing cultural practices. The authors suggested that it was considerably important for these organisations to improve low effectiveness in the profitability and quality context through building relationship between organisational effectiveness and culture. Hierarchical culture dominates in Chinese

firms to keep stability, operational efficiency and close association among individuals' behaviours. That was referred to the western influence on the Chinese construction industry.

Moreover, Coffey and Trigunarsyah (2011) investigated organisational cultural profiles in five Indonesian construction companies using OCAI instrument. They found hierarchy culture was the dominant in the five organisations revealing that governing by rules, stability, controlled systems, were the basic prevailed culture. An intention to examine the relationship between organisational culture and successful quality system implementation is evolved through a continuing research bearing in mind that it has found by other researchers that organisational culture has significant impact on quality improvement of construction organisations.

Also in Indonesia, a study of examining the influence of organising project selection was conducted by Dharmayanti *et al*. (2012). Focus investigations were undertaken on infrastructure organisations responsible for project selection. Hierarchy culture was the dominant profile while clan culture was preferred by the respondents in these organisations. This difference between current and preferred cultural types leaded researchers to necessitate the need for more improvements in the governmental organisations which mostly characterized by hierarchal culture. Improvements had to be taken in decision making process in the current project selection process to be more effective and more efficient parallel with the established strategic goals of the organisations. The efforts that can be taken by leaders and mangers must be focused on excluding unnecessary steps in the decision making process and facilitate procedures so that hierarchal culture might be decreased. On the other side, efforts to enhancing clan culture are needed through aspiring teamwork concepts, caring more about people and encouraging participation.

Monkey culture found to be prevailed on the Malaysian contractors (Wang and Abdul-Rahman, 2010). In a study conducted on 327 Malaysian contractors through a national-wide questionnaire, leadership style, people oriented and task oriented styles were of equal numbers as chosen by respondents. Generally, 'monkey culture' is characterized by teamwork orientation and loyalty to the organisation. An indication of difficulties by

the investigated organisations to find its organisational culture was reported. Making more profit and customer opinion caring were of high importance in Malaysian contractors which was in concurrent with western companies.

In contrast to the above cultural profiles, the US construction companies showed that clan was the dominant culture (Oney-Yasic *et. al* 2006). This kind of culture is characterized by an organisation that operates as a family, aspiring leadership, strengthen teamwork, high level of locality, concern more for people, encourage employer participation. US construction companies, as revealed from this study, showed strong culture that is considered as a key factor in their success. This culture was positively correlated with organisational performance. The leadership style was described as mentor and focuses on the human development, high employee loyalty and commitment, teamwork, employee concern and extended family work culture. The results had similarities with previous studies like Deal and Kennedy's (1982). However, due to the small sample of this study, it may be a weak point that results did not reflect the whole US companies.

Ankarah and Langford (2005) performed a study on organisational culture of contractors and architects as a project coalition side. It was attempted to understand the main cultural characteristics of the two groups. Similarities between contractors and architects found in factors like, centralization, employee treatment, task management, task importance, power sources. However , significant difference were found in tasks orientations, sources of power orientation, managerial relationships, control, coordination, formal degree, employee status , ambiguity concepts, recognition, and justification of tasks. The research addressed these differences in organisational culture of both contractors and architects as a source of conflicts taken place among project parties. Both parties had to show more tolerance and real collaboration establishing a balance base working towards successful projects. To reduce conflicts, teams and leaders should have an atmosphere to improve the chances of finding the right "*project chemistry*" (Nicolini, 2002).

Chen and Mohammed (2006) conducted a study to find the link between Knowledge Management KM and organisational culture in 12 construction organisations

(contractors) working in Hong Kong. Through semi-structured interviews with top management, they found that leadership mainly had significant effect on KM. Innovation, communication and IT management have positive correlations with organisational culture. The interviews also revealed that strategic guidance, reword incentive systems and empowering policies should be taken into consideration to improve KM activities. Thomas *et al.* (2002) investigated the correlation of organisational culture with quality outcomes in thirteen Australian construction sites. The study tried to raise the awareness of construction quality management. By utilizing Competing Values Framework CVF, they found that clan culture had a correlation with strong quality outcomes while market culture linked with weak quality outcome. The results emphasised the need of having healthy and strong relationships with employees.

On this basis of the above review, it can be concluded that healthy relationships and strong organisational culture have positive impact on performance and effectiveness of a project, while disputative relationships lead to poor project performance. The construction industry needs to keep close integration with the culture to lessen the cultural gaps between organisation's members as well as maintaining healthy relationships with other parties. Alkhamali *et al*. (2013) investigated the literature of organisational culture in construction and listed the important findings as summarized in Table 4.1.

Table 4.1: Findings from the literature review of organisational culture in construction.

Ref	Name	Year	Country	Study findings – Dominant Culture Types
1	Zhang *et al.*	2006	China	Chinese construction organisations had prevailed hierarchy and clan OC. Western culture had influences on the Chinese construction industry.
2	Novana and Ogunlana	2006	Thiland	The prevailed type was hierarchy followed by market and hierarchy culture is growing in this industry. They found that Thai construction organisations experienced lack of innovation and growth.
3	Karimi *et al.*	2012	Iran	The relationship of OC with TQM in Iranian oil companies. Using structural equation modeling, no positive relations found between organisational culture types and TQM.

4	Dharmayanti *et al.*	2012	Indonesia	Hierarchy culture was the dominant profile while clan culture was preferred by respondents in infrastructure organisations. Improvements have to be taken in decision making process in the current project selection process to be more effective and more efficient. They needed to work with the established strategic goals.
5	Coffey *et al.*	2011	Indonesia	Hierarchy culture found to be the dominant in five construction organisations. The results revealed that governing by rules, stability, controlled systems, and were the basic prevailed culture.
6	Igo *et al.*	2006	Australia	In studying OC of Engineering, Procurement and Construction management consultancy in Australia, the dominant culture found was market culture. Respondents chose (employee focused culture) as the most desired form of culture. The indication was that employees need the people-oriented leaders rather than task-driven
7	Chen and Mohammed	2006	Hong Kong	The link was tested between KM and OC in 12 construction organisations (contractors) working in Hong Kong. Leadership mainly had significant effect on KM.
8	Thomas *et al.*	2002	Australia	The impact of OC on quality outcomes in thirteen Australian construction sites was examined. It is found that clan culture had a correlation with strong quality outcomes while market culture linked with weak quality outcome.
9	Ankarah and Langford	2005	UK	OC of contractors and architects was investigated. Similarities between contractors and architects found in factors like, centralization, employee treatment, task management, task importance, power sources. Significant difference were found in task orientations, sources of power orientation, managerial relationships, control, coordination, formal degree, employee status , ambiguity attitudes, recognition, and justification of tasks.
10	Wang andAbdul-Rahman	2010	Malaysia	A study of OC on 327 Malaysian contractors. It is found that monkey culture was the dominant. Regarding leadership style, people oriented and task oriented styles were of equal numbers as chosen by respondents. Generally, monkey culture is characterized by teamwork orientation and loyalty to the organisation.
11	Oney-Yasic *et al.*	2006	USA	In a study on the US construction companies, clan was the dominant culture. The research indicated the existence of harmony between OC's dimensions which were positively correlated with organisational performance. US construction companies had strong culture that considered as a key factor in their success. The results had similarities with previous studies like Deal and Kennedy's (1982).

12	Cheung *et al.*	2010	Hong Kong	An OC framework was developed for construction organisations. The important artifacts of OC were identified forming organisational cultural factors. The highest ranked factors were namely, 'Goal setting and accomplishment' and 'Team orientation'. Although trust and cooperation are highly needed in construction contracting (Latham, 1994; Egan, 1998; CIRC, 2001), it had not been highly ranked in this study for contracting firms of Hong Kong.
13	Gritli *et. al.*	2012	Turkey	The relation between leadership and organisational culture was tested in the Turkish construction sector. OC and LS were highly correlated. It was found that managers of contractors were characterized by certain cultural attributes showed to have certain leadership styles that lead eventually organisations to success.
14	Abdul Nifa and Ahmad	2010	UK	The impact of OC of construction partnering on innovation was examined. A framework was suggested for construction partnering firms to improve their OC to improve innovations as a measure of success.
15	Oney-Yazic *et al.*	2007	Turkey	The results showed that Turkish construction organisations have both clan and hierarchy as their dominant OC types. This result had no match with their objectives and goals of growth and competitiveness. Architectural and contracting organisations focus efforts to be stable and had worked to maintain team working attitudes. Whereas these companies should work on establishing productivity and innovations. The type, size and age of organisation had a significant correlation with OC in the Turkish construction.
16	Oyewobi *et al.*	2011	Nigeria	The effect of organisational culture on reworks in building projects was tested. There was a clear influence of the OC on reworks with a value of 0.498. Communication and working pressures were the most factors affected reworks the building construction organisations. Organisations need to enhance better OC and revise the management of operations in order to reduce rework occurrence.
17	Brockmann and Birkholz	2006	Germany	He investigated cultures in German construction and automobile companies. The results showed differences in culture and environment between the two groups. An indication was provided for cultural differences in values for civil and mechanical engineers. A confirmation was found with previous results as (Woodward, 1995 andRiley and Clare-Brown, 2001).

18	Nummelin	2007	Finland	The dominant OC type was market culture and it was supported by the national culture characteristics in Finland. The main cultural elements shown were competitiveness and productivity. Individuals were well satisfied financially with a centralized power found in these organisations. It was noticed that the external market environment directly influenced the actions of construction organisations. Organisation members preferred clan culture type which characterized by internal focus and strengthen integration.
19	Sullivan *et al.*	2009	USA	An investigation to the influence of information environment on organisational culture in construction industry. The United States Army Medical Command (MEDCOM) implemented the information environment to reduce the problems of poor performance. Results showed reducing managerial problems by 50% and 99% of the projects had no (contract-related) changing orders.
20	Hatmann	2006	Switzerland	A study on the role of OC with innovation was conducted based on case study of a medium-sized contractor. The results indicated that OC affected innovation of both client and contractor organisations. Inter-organisational solutions were suggested based on the results found. The author called organisations to have strategic cooperation with other companies in the same field of business.
21	Talukhaba *et al.*	2009	South Africa	The link between corporate culture and performance in South African construction firms was studied. A positive relationship was found between corporate culture and organisation's performance. The size of firm had a relation with the magnitude of the influence; with the large companies, the influence of corporate culture is small while the influence is much higher in small and medium companies.

*OC: Organisational culture.

4.7. Organisational culture and disputes

Cultural interactions between project parties are practiced in nearly every construction project. Adversarial culture dominates the practices of construction industry which is associated with "*deeply ingrained adversarial attitudes. Many believe that they have intensified in recent years …disputes and conflicts have taken their toll on morale and team spirit*" (CRC, 2007). This adversarial culture must be changed to more healthy

culture. Latham called for employing team work culture and trust to *"make recommendations regarding reform to reduce conflict and litigation and encourage the industry's productivity and competitiveness."* (Latham, 1994). The CRC (2007) suggested cultural change to create strong and healthy culture. This can minimize conflicts and disputes to move the industry from being adversarial to more 'dispute adverse'.

Many studies pointed out to that people practices and interactions are related to conflicting culture. Therefore, people issue is centralized in the construction industry's nature, "*Construction is really people*" (Hohns, 1979). However, People needs can be a source of construction disputes as reported by (Carmicheal, 2002). Disputes take place in construction organisations as people activities and attitudes interfere with each other (Weddikkara, 2003). Chan (2003) pointed out that contractual management and cultural conflicts were among the most important factors causing disputes in international projects. In addition, architects and contractors, as different cultural groups of the project parties, showed cultural clashes inside their organisations (Ankrah and Langford, 2005).

In examining the effect of culture on management of conflict, Elsayed Elkholy and Buda (1996) conducted a study on the Middle East and the United States. The cultural influence on conflict management was very obvious; US managers were dominating and compromising while in the Middle East, they differently displayed avoiding and integrating style. In contrast, Kozan (1989) set out to investigate conflict issues in Jordan, Turkey and the United States. He found that conflict behaviours of managers towards fellows and employees inclined more towards avoiding conflicts. In studying construction disputes, similarities were found between UK and Australia in cases related to disputes in contracting standards, legal systems and cultural causes of both countries (Watts and Scrivener, 1995).

Moreover several studies pointed out to the effect of culture on disputes (Arditi *et al.*, 1985; Rhys Jones 1994; Smith, 1996; Daoud and Azzam, 1999; Chan and Suen, 2005; Tsai and Chi, 2009). Understanding cultural factor enables leaders to reduce incidences

of conflicts and disagreements among team's individuals (Alkhamali *et al.,* 2010). Strong organisational culture can be described by two factors namely, alignment of strategy and organisational culture and high organisational commitment among organisation's members (O'Reilly, 1989). Although organisational behaviours in construction organisations can be considered to be not random (Ankrah and Langford, 2005), Hofstede (1984) argued that culture may regulate people behaviours. From the above discussion, considering continuous cultural improvement in organisational organisations can reduce the occurrence of conflicts and in the same time can strengthen the relationships with other parties.

4.8. Organisational culture and leadership

Leadership factor should be incorporated to fully understand organisational culture. This is because both organisational culture and leadership are both interlinked (Schein, 2004). The research of organisational culture exhibited relations to leadership, management strategies and decision making processes (Wince-Smith, 2007). In construction organisations, it is found that both leadership style and organisational culture are highly correlated (Gritli *et al*, 2012. To some extent, a significant relation was found between leadership practices and cultural profiles. Using Multinomial Logistic Regression, It was found that managers of contractors characterized by certain cultural attributes showed having certain leadership styles that leaded eventually to success.

In supporting the link between leadership and organisational culture, a study conducted with Estonia Enterprises employees and managers reveals that organisational culture and leadership are linked with each other to support work authenticity and develop pro-action/reaction towards changing environment (Alas *et al.,* 2011). Good leadership practices improve employees' loyalty by the provision of required support and boost up their professional skills for taking innovative initiatives. Innovative organisational climate is the result of different leadership factors that include professional respect and loyalty. On this basis, organisational culture is easy to be shaped considering factors related to leadership and innovative culture. Values are the core element of the culture

that present itself to the workforce, so that organisational priorities are focused by employees. Culture encompasses shared norms and values to direct and manage employees' behaviour for the right decision making.

Supportiveness is also an important aspect of organisational culture, where interests of employees are required to give specific consideration by the leaders and managers. In a supportive work culture, trust, openness, autonomy and collaboration are required to be maintained properly (Sharma and Sharma, 2010). Supportive cultures also make people feel valued and committed to the organisation and that ultimately results in improved business performance and productivity. Organisational culture encompasses all visible and invisible characteristics of culture as mentioned above to promote the supportive work culture for people of distinct cultural background. This would directly lessen the chances of cultural differences or gap in the work environment. Organisational environment with minimum cultural differences not only help in completing work within time constraints, but also turn down probability of disputes in attaining defined goals and objectives.

The role of leadership becomes significant and crucial in the determination of the organisational culture. Underpinning the case of partnering in the construction industry, it should be noted that the industry requires an appropriate culture in order to support the contracting mechanism including owners, contractors, consultants, government authorities, and local people. As discussed in chapter two, partnership can be adopted by leaders to minimize the occurrence of dispute. Therefore, the issue of partnering in this industry can be primarily seen as encouraging all parties to overcome their difference and reduce disputes and conflicts in order to attain a common goal. Leaders have to instil the attitudes of partnership among subordinates. This can be done through making a remarkable change in the components of organisational culture like behaviours values and practices. However, changing behaviour and/or attitude of parties is not an easy task due to the vested interest of each of the involved parties (Lussier and Achua, 2009).

It has been argued by researchers that a leader has his/her own style of influencing people and making a positive impact upon the workforce. Besides this, a leader also

provides a unified direction to his/her organisation and gives a clear vision to his/her subordinates. However, the leadership style has a profound impact upon the behaviour and attitude of subordinates and this gradually affects the organisational culture. If a leader adopts the autocratic style, s/he tend to believe in the philosophy of control and command, and more likely to create a hierarchical culture. On the other hand, if a leader's style is democratic or participative, s/he would promote flexibility at the workplace. Also while a transformational leader focuses on people's needs and inspiration, a transactional leader tends to direct efforts to task achievement through contingent reword process. Democratic and transformational leaders work in enhancing the degree of trust and openness between the leader and followers, and among followers. In addition, the effective style of leadership tends to promote a culture, which would be known for innovation, creativity and temporary teams. An equally important leadership style is commonly referred as 'laissez-fair', which can be viewed as non-leadership style, rather than a leadership style (House and Aditya, 2001). This is because subordinates are empowered to take decisions and make changes and develop a high degree of cohesion at the workplace.

4.9. Organisational culture and change

It is evident through the above discussion that each organisation has a unique culture and no single type of organisational culture can be accepted as the universal culture. However, it has been argued by many scholars and professionals that certain elements make a culture effective and value oriented (Rose *et al.*, 2008). When issues of culture are identified, analysed, and measured in construction industry, it can be argued that the industry is an integral part of a country's business environment and inherently involves three basic types of personalities. These three types of personalities consist of undertakers, caretakers and risk takers. It should be noted here that the major concern of the construction industry is related to its structure, which is based on the partnership system. The industry includes a number of key activities, which are interrelated and interdependent and require a high degree of synchronisation between and among them. In the light of an effective and value oriented partnering in construction.

The need for changing construction organisation's culture is of importance to face changes and developments take place in the construction industry. Organisations need to motivate members, develop innovative processes and improve project's quality. This can be achieved by improving competitive position to meet market demand. Change in organisational culture or 'transformation' to a better level can meet these objectives. Another important objective can be related to dispute, which is an integral part of the current study. CRC report (2007) insisted of the importance of cultural change in minimizing the number of disputes, "*without cultural change being led from the top it is unlikely that there will be a reduction in disputes arising from construction projects.*"

Organisational change is considered as a serious and difficult task of management practices (Schein, 2004). This is due to the resistance of organisation's members against change. They have been mentally programmed through a set of beliefs and practices that make them experiencing 'a comfort zone.' Since culture is rooted deeply in every organisation, change must start by changing beliefs, attitudes and values (Black and Gregerson, 2002). That is brings the importance of people in the process of change.

The CRC report directed attention to the role of leadership and top management in this issue. As the role of leaders is apparent in creating cultures and influencing their beliefs and values, the leadership role can be found in transforming organisational culture since they have power and influence. The ability of leaders is deemed as a driver of change by understanding cultural characteristics and knows what motivate people and have the needed consciousness experience for overcoming change barriers.

Strong organisational culture is needed highly in the construction industry. O'Reilly (1989) described culturally strong organisation by two factors namely, alignment of strategy and organisational culture and high organisational commitment among organisation's members. This can aid organisations with a competitive edge to sustainability and success. Also Schein (2004) mentioned that strong culture exhibited notable effectiveness. He reported the set of values and beliefs found in organisations and coherence among people and their activities, all of this enhance the strength of a

culture. In this study strong organisational culture is needed to first bring effectiveness to project's activities and secondly to minimize disputes to minimum levels. If the investigated organisations can meet the objectives attained here, strong organisational culture will be dominated aligned with effective leadership.

4.10. What is the rational for using OCAI based on the CVF?

The use of OCAI tool for assessing and diagnosing the organisational culture is beneficial because of its various advantages and thus, it has been chosen to demonstrate organisational culture investigations of the public construction organisations. Implication of this tool reflects its effectiveness in diagnosing the culture an organisation from the beginning of change. Another significant reason to adopt OCAI tool is the six key aspect, including employees' management, strategic emphasis, dominant characteristics, organisational leadership, organisational glue and success criteria, through which organisational culture assessment can be done rapidly and easily (OCAI in Public Administration, 2010). All these key aspects aid in measuring the organisational culture in respect to various areas, including mutual trust, commitment, goal accomplishment, formal policies, human development, competitive actions, stability, operational efficiency and so on (OCAI Online, 2010).

Moreover, the use of OCAI model make inclusion of all personnel characteristics easy, by which differences in the current and standard culture are easily identified in relevance to the employee's satisfaction. OCAI tool is characterised for its coherent or step by step process, which makes it easy for construction organisations to manage change according to the prevailing culture. Besides that, OCAI tool provides a clear vision on the culture prevailing in the international market or the culture required to be adopted. On this basis, the OCAI tool aids in demonstrating cultural strength for maintaining the sustainable change. It has various key characteristics that are necessary for sustainable business position and thus, adoption of this tool is considerable for managing culture, see Appendix A. Some of these characteristics are well-grounded, practical, focused, manageable, timely and quantitative.

The OCAI tool aids in bringing perfection in the internal communication, which has in turn reduced the cultural differences and gap between different teams. It allows considering consent of employees and their belief related to the aspects considered important for the positive organisational culture, so that employees' involvement can be enhanced to the extreme level. This tool is quite substantial to enhance employees' satisfaction as their impression is valued by the organisation in decision making and therefore, it has been chosen for assessing the organisational culture, (OCAI Online, 2010). On the whole, the focus towards employees' interests and needs is the vital determinant of the organisational culture that has been considered under this model to enhance better characteristics. All the above mentioned reasons and rationale behind selecting OCAI model for examining the organisation culture of the public construction.

4.11. Summary

It can be concluded from the above discussion that organisational culture is a vital issue of concern for business organisations running in the global and local environment. Organisational culture is the accumulation of shared beliefs, opinions, thoughts and impressions of people of different cultural background. The main focus on developing the favourable organisational culture is to keep balance in the organisational functioning and personnel interests. In context to the public construction sector, it can be concluded that current practices of the organisations induces demand to consider organisational culture as an important aspect. Importance of organisational culture in the construction industry is originating with flourishing construction industry outside local boundaries. On the basis of organisational culture review in the construction industry, it can be concluded that multi-participants are working in this industry that have different cultural background, and thus, it is crucial to look after the cultural information of all participants to keep close alignment and association among employees and with organisational objectives as a whole.

There exists various cultural instruments useful for measuring organisational culture including, organisational culture profile, OCAI based on Competing Values Framework CVF. Furthermore, it can be concluded that CVF aids in measuring organisational

culture in light of the four cultural aspects, namely clan, adhocracy, hierarchy and market culture. Similarly, OCAI culture focuses on four frameworks and six other key determinants related to the culture profile. Regarding organisational culture change in construction industry, it can be concluded that leadership is linked to the culture to accomplish the common goal. It can be inferred that various challenges in bringing change are top management support and commitment, lack of communication and lack of resources. Overall, it can be generalised that organisational culture focuses on the manner, under which business related actions and strategies are organised to keep active involvement of employees all across the world.

5 Chapter five - Practices of the Saudi public construction.

CH1	**Introduction** 1. Problem of the study. 2. Aim and objectives. 3. Thesis structure.
CH2	**Disputes in the construction industry** 1. A review of dispute literature. 2. Owner-contractor relationship and its link to disputes. 3. How to avoid disputes?
CH3	**Review of theories and practices of leadership in the construction industry** 1. An overview of the literature of leadership theories and practices. 2. A review of the common leadership styles. 3. Justification of leadership theory and its instrument for this study.
CH4	**Review of theories and practices of organisational culture in the construction industry** 1. A review of the important theories and practices of organisational culture in construction. 2. Identifying the characteristics and dimensions of organisational culture. 3. Justification of organisatinal culture theory and its instrument for this study.
CH5	**Practices of the Saudi construction industry** 1. A review of the common practices of leadership and culture in the Saudi construction 2. Current challenges facing the Saudi construction.
CH6	**Methodology and research methods** 1. Research design. 2. Data collection methods. 3. Data analysis of both quantitative and qualitative phases.
CH7	**Data analysis – quantitative stage** 1. Investigating the current practice: A sample of 117 engineers in the OPC. 2. Finding dispute profile and correlations. 3. Finding the influences of leadership and organisational culture on disputes.
CH8	**Data analysis – qualitative stage** 1. Exploring the best practice: semi-structured interviews with 11 leaders and experts. 2. Identifying leadership qualities and organisational values for minimizing disputes in the OPC. 3. Suggesting key strategies and processes for minimizing disputes.
CH9	**Discussion of the analysis** 1. Discussing the quantitative and qualitative results. 2. Identifying the main findings. 3. Linking the outcomes with the aim and objectives.
CH10	**Framework development** 1. Combining the findings together on the light of the study's objectives. 2. Developing the study's framework 3. Validating the framework in from academics and practitioners.
CH11	**Conclusions and recommendations** 1. Assessing leaders and organisations how to minimize disputes. 2. Recommendations for future work.

5.1. Introduction

Parallel to the growth in oil revenues, the Saudi construction industry has evolved as a supporting industry to various investment programs for national construction in Saudi Arabia. Since discovering oil in commercial quantities, the government in Saudi Arabia has been involved in using the revenues it generates from domestic and world over sale of oil in financing the developmental plans of the country. The government has been successful to a major extent in implementing those plans and improving the living standards of the residents of kingdom.

The current study is conducted in the public construction of Saudi Arabia. Mainly, it explores the influences of leadership and organisational culture on construction disputes. After reviewing disputes in construction (chapter two), leadership theories (Chapter three) and organisational culture (chapter four), this chapter shed some light on the main aspects of the Saudi construction industry. That is to have an understanding of the construction context that has been investigated and to exhibit its characteristics, economic situation and its specific nature.

The main aim of this chapter is to explore thorough knowledge about the Saudi construction industry. It aids in investigating the challenges and the prevailing culture of the construction industry. An overview is presented consisting of a number of sections and sub-sections to reflect economic overview of the construction industry along with its nature. Public construction practices have also been under review to show its level of contribution in the public sector as well as the challenges and disputes taken place in the current practices. The impacts of culture and leadership on public projects and the links to the topic of this research are undertaken.

The Saudi construction environment has similar features as other construction contexts in other countries in terms of disputation and conflicting. The dramatic booming in governmental projects affected more occurrences of conflicts, delays and disputes.

However, religion, economy, contractual regulations and culture are important factors to be considered in studying disputes in the Saudi public construction (Weddikkara, 1997). An increase in dispute incidences was notice in the Saudi public construction by a number of commentators and researchers. Researchers have related dispute occurrence to delays in the first place (Al-sultan, 1987; Falqi, 2004; Assaf and Al-Hejji, 2005). In Dispute legislation, which take place in the 'Board of Grievances', is a long process. Consequently, dispute resolution takes longer time, associated with high cost and brings dissatisfaction among dispute parties. The time taken in courts ranged from (1to 8) years with 92% of the investigated cases took more than a year Al-Reshed (2002).

5.2. Cultural background of Saudi Arabia

Saudi Arabia is one of the largest countries in the Middle East with an area of approximately two millions square kilometres and a population of around 28 million people as illustrated in Figure 5.1. Although the history of civilisation in Saudi Arabia has its

Subject	Kingdom of Saudi Arabia
Government	Unitary Islamic absolute monarchy
Location	Middle East, bordering the Arabian Gulf and the Red Sea, Yemen
Area	2,149,690 Square km
Natural resources	Petroleum, natural gas, iron ore, gold, copper
Population	28,083,000
GDP (purchasing power parity)	$597.086 million
GDP-real growth rate	6.5%
Inflation rate	5%
Religon	Islam
Ethnic groups	Arab 90%, Afro-Asian 10%
Currency	Saudi Riyal (SR)
Official languages	Arabic

Figure 5.1: Profile of Saudi Arabia (2011), (http://data.un.org/CountryProfile.aspx).

origin from the culture and society of the Arabian Peninsula (Al-Rāshid, 1986) the discovery of oil reserves in 1938 changed the culture of the country and had its reflection on the national culture and people lifestyles (Bowen, 2008; Niblock, 2006; Simmons, 2005).The culture in Saudi Arabia is described with 'high power distance' (Hofstede, 1980). In other words, a wide gap in power is prevailed between superiors and their subordinates. Also another aspect is found in this culture concerning the relationship between individuals. It is reported that people relationships in one place can be more important than business working issues (Lundgren, 1998).

National culture affects the practices of organisations which require usually internal cultural change to cop up with surrounding circumstances. Religion is considered influential factor in Saudi Arabia that found in all areas of life and Sharia law forms the constitution of the country (Tschentscher, 1992). Also, Tribal tradition and social structure are also important factors that have impacts on organisational practices. The family or tribe is of central importance in social life. The Saudi culture is a unique blend of Arabic tribal traditions which shapes the mind-set and behaviour of the Saudi people. These cultural factors have affected organisations and therefore cultural awareness is needed for researchers studying this context.

5.3. An overview of the Saudi construction industry

The Saudi construction industry is one of the most fast-paced growing industries in the Middle East. The estimated gross domestic product for 2013 is 927 billion dollars with forty five percent coming from its petroleum reserves (http://data.un.org). In 2010, the value of projects under implementation was about £1.18 trillion (Ramady, 2010). The construction industry in Saudi Arabia has been positioned on a stable level after the global financial crisis, with a good investment infrastructure. The demand for housing, infrastructure, and utility construction has been enormously growing because of increasing population in the country. This construction industry sustains positive growth in the near future with potential demand for the construction of residential and commercial buildings. The growth of the Saudi construction industry is influenced by various socio-economic factors, such as government support, low rate of inflation, flexible regulations for construction projects, sustained demand due to growing population, and latest technologies for construction industry (IFR, 2010).

5.3.1. Economic factor

The market of the construction industry in Saudi Arabia is enormously growing with a great achievement. This sector is ranked on the third position among the country's economic sectors, followed by hydrocarbons and ICT sectors. The residential construction sector in Saudi Arabia explicates 67% of the total value of this industry (EC Harris Research, 2011). Saudi Arabia shares one quarter out of the overall developments of construction industry in the Gulf region.

Various factors promote construction sector in Saudi Arabia including economic, geographic, demographic factors, and government support. The construction sector's growth has been highly affirmed by the Saudi government, as around £ 247 billion was invested by the government for facilitating large projects in the year 2011 (The Saudi Construction Industry, 2011). The potential for growth is quite high in the construction sector of Saudi Arabia, as the demand for commercial and residential construction has rapidly been increasing.

Building and construction sector in Saudi Arabia is one of the main economic activities for Saudi people, which provides job opportunities to university graduates and technicians. The hourly wage rate in this sector is £ 2.07 in Saudi Arabia (Industrial Investors Guide to Saudi Arabia, 2011). The percentage of labour rates increased from £ 2.07 in 2009 to £ 2.97 in 2010 for skilled workers. This sector highly contributes to the employment as 2.5 million people or 40.4% of the workers are employed in the construction industry. The employment rate in the construction sector has rapidly increased in the time-period of 2009-2011 (EC Harris Research, 2011).

The data of construction industry in the Gulf Cooperation Council GCC countries for 2011 represents that Saudi Arabia has maintained the second position after the UAE as having the highest real estate and construction value. The worth of projects of the UAE and Saudi Arabia is £197 billion and £135 billion respectively. The total contributed project value of Saudi construction industry in Top 100 projects is 35%, as shown in Figure 5.2, which is the second highest after UAE, which has this figure as 51.1%, (GCC Construction Industry: Residential and Commercial Building Construction, 2012).

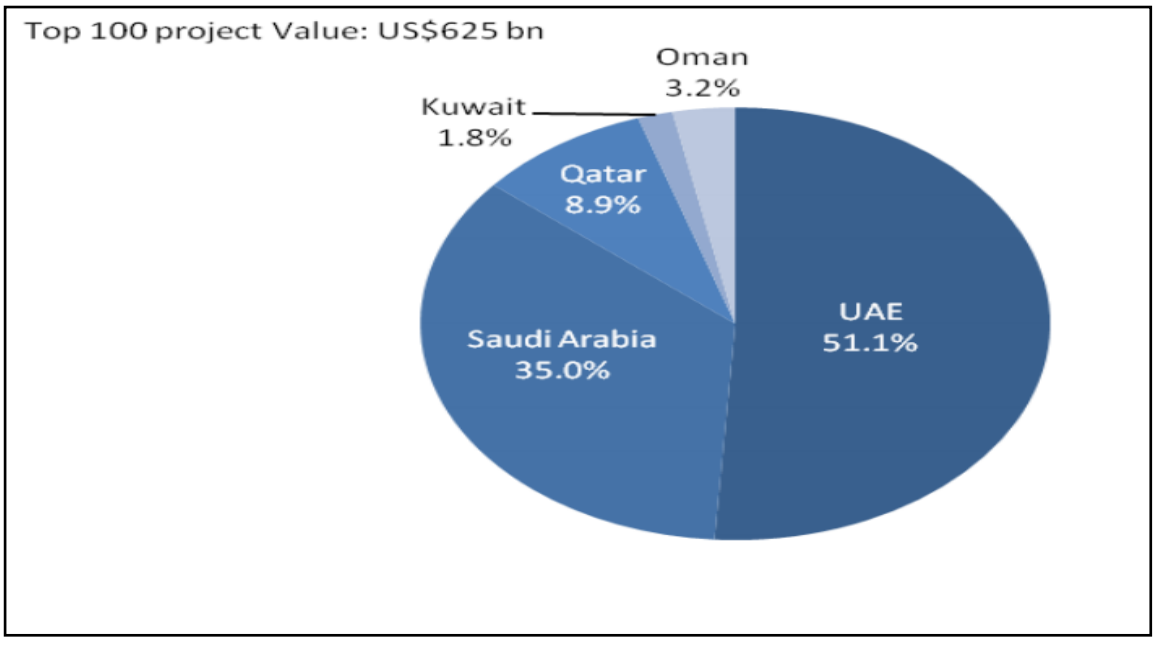


Figure 5.2: The total contributed project construction industry in the GCC, (GCC Construction Industry, 2012).

For the planned or underway projects, Saudi Arabia is positioned as the most prominent market in the Gulf region and the UAE has emerged as the second largest market. In evidence of this, it can be said that Saudi Arabia's total value of projects, either planned or underway, has been £ 371.59 billion, while this figure has been £ 340.62 billion for the UAE projects in 2011. Saudi Arabia has a number of projects planned or underway those have increased over the years 2008-2011, as compared to other GCC countries like Bahrain, Kuwait, Oman, and Qatar (Qatar Construction Sector, 2012).

5.3.2. Contractors in the Saudi construction industry

Before elaborating the role of contractors in the Saudi context, it should be noted that contractors used in this study are those 'indigenous contractors'. As shown in the previous section, the construction sector contributes largely to the country's economy. This rise in economy leaded to construction booms that brought out new investors in construction sector. Therefore new contractors have joined bidding on the government's projects. Most of these contractors are categorized by less experience and weak financial position which resulted in more delays and disputes that were noted to take place between owners and these contractors (Faqi, 2004). Previously weak contractors can be found in subcontracting but recently a number of un-experienced contractors have jumped to be general contractors in important projects. One reason for this is the bidding system in the government department which is based on 'lowest price' concept. Professional contractors are able to finish their projects in a shorter period of time due to being equipped with modern facilities than the others. Some other contractors have the financial capabilities more than others which make them take on the projects under 'Cost-Plus Fee Agreement' or 'Build-Operate-Transfer Scheme'. Gaining competitive advantage is the primary goal of a construction company in order to withstand the present trends.

This brought a widespread competition among the Saudi construction companies or contractors. The head-on competition among construction companies drives them to develop competence and innovative skills and makes the owners demanding for more and better. There are several factors that can be held responsible for triggering

competition among contractors. These factors mainly include, increase in the number of contractors or construction companies, decline in the construction demands from the public sector and owner seeking for high quality construction. Some of the contractors have a competitive edge due to using latest technological capabilities, which enables them to undertake multiple projects of construction at the same time while also maintaining the service quality. However those high qualified contractors are very few in the today's public construction.

5.3.3. Challenges facing the Saudi construction

Uncertainty is an inherent element in the business of construction, due to the nature of construction, which involves complex processes and requirements, like, tendering, competitive bidding, use of skilled workforce, highly defined project planning and being chiefly dependent on derived demand, or its requirement for a competent and distinctive approach to manage the construction business. Saudi Arabia is no exception for the existence of uncertainties, and thus, there requires extensive project planning for the construction businesses that are carried out in the country. Surpassing all the challenges, Saudi Arabian construction industry has been able to keep its growth rate intact and to a certain extent unaffected from the major ups and downs of the worldwide construction industry. Though the growth rate is slow, but is steady amid the volatile markets of real estate in the gulf region and rest of the world.

Narrowed down concept of competition in the construction industry can be put forth in the form of competitive tendering on price. Ultimately, the 'lowest price' or lowest cost is regarded to be the most common criterion for entering the contract with a construction company or sub-contractors by the clients. The declining demand for construction in Saudi Arabia necessitated the structural or other changes to be brought in the industry. However, enduring the difficult conditions, the Saudi construction industry continued to grow by infusing high levels of efficiency, effectiveness and quality in its services. The present scenario of increasing demands and the developments expected to take place in future, necessitate the contractors requiring importing the needed resources.

Since there have been many ups and downs in the economic conditions of the world, the Saudi construction Industry has also faced many challenges in the recent past. The real estate business has acknowledged certain dramatic changes in the past few years, due to which the markets around the world, especially in the developed nations tumbled down and raised serious threats to the worldwide construction business, including that of Saudi Arabia. Despite the major challenges it faced like the worldwide economic recession, the Saudi construction industry has been able to maintain its growth rate at a significant level.

5.4. Practices in the Saudi public construction

Under the public construction domain, the creation of highways, massive transformation of rail networks, setting up of new lines linking the country's eastern and western coasts, and population centres from north to south has been accomplished. These efforts needed good practices for public construction to produce better outcomes. These practices are exhibited in behaviours and values of leaders and organisational members involved in the implementation of construction projects. Unfortunately, as researchers and commentators reported, current practices have weaknesses and problems require changes to meet difficult situations associated with public construction.

5.4.1. Main characteristics of the Saudi public construction

As shown earlier in this chapter, construction boom was associated with the Saudi construction in the recent years. This aspect is referred to 2005 when the country joined the WTO; it was open for international construction companies to invest and joined partnerships with local key players. The public sector attracts many international contracting firms to participate in the mega projects. The government encouraged this trend to develop the country with international standards known that this sector depends greatly on the government support. A percentage of 67% of the whole industry accounts for the Saudi government (Alsaqer, 2001).

Specifically talking about the main characteristics of public construction, it can be stated that Saudi Arabia, since having experienced an unprecedented boom in this sector during past few decades, has laid increased emphasis over the development and expansion of the country's infrastructure more than ever. The government has undertaken the creation of many new construction projects, including airports, highways, and even new cities. The ambitious real estate and other public construction projects also attracted various construction professionals from all over the world. The construction industry in Saudi Arabia accounts for about 15% of the country's labour force and 14% of its energy consumption. (In-Focus Report: Saudi Construction Sector Review, 2010).

To achieve the present state of infrastructure development, there are certain vigorous practices that have been followed by the government and different players in the public construction. These practices involve crisis management, bringing change and innovation, intensive strategic planning, corporate re-structuring, and introducing new models for change management. Going back to the period of 1975 to 2000, due to fluctuations in oil prices, the sector of residential construction as part of public construction witnessed high developments.

The market underwent extreme conditions of undersupply of residences to low and middle income segments of population, the reason being rapid growth of population in local as well as expatriate populations. However, gradually after the Foreign Investment Act, which intended to increase the level of Foreign Direct Investment in this sector, got enacted, the growth of residential construction market started pacing up. With this act, the laws regarding foreign investment got modified. Under this act, the creation of Saudi Arabian General Investment Authority was done, which was held responsible for licensing new foreign investments across the kingdom. Many multi-billion dollar projects have been undertaken by both private as well as public sectors, while many of the projects are in the stage of planning.

The Saudi construction has cultural challenges that associated with the environmental issues surrounding this sector. Part of these challenges is found in any country which is

what inherited in construction industry like fragmentation, complexity, diversity etc. Other challenges are unique aspects of this sector. For example, the dependence on workforce from outside of the country forms more than 90% of the workers in construction industry (Daoud and Azzam, 1999). Technicians come from countries like Indian, Pakistan and South East Asia and most of these workers are neither skilled nor educated. This brought multi-cultural background and language barrier to the industry and result cultural differences and conflicts.

5.4.2. Tendering processes

As discussed in section (5.3.2) the construction high economy attracts more contractors than before. Therefore new contractors have joined bedding on the government's projects. Most of these contractors are categorized by less experience and weak financial position. More delays and disputes were noted to take place between owners and other parties. Previously weak contractors can be found in subcontracting but recently a number of un-experienced contractors have jumped to be general contractors in important projects. One reason for this is the tendering system in the government department which is based on 'lowest price' concept.

The process of contractor's bidding in public construction is subjected to the legal system of Governmental Procurement Regulation GPR. The Governmental Procurement Regulations GPR issued in 1966 and revised in 1977 (GPLR, 1985). The GPR requires a specific system of delivery (Al-Jarallah, 1983; AlGahtani, 1991). The GPR controls, regulates and implement all of the government projects through the Public Works Contract PWC which was prepared in 1988 (GPLR, 1985). These regulations describe the way to invite contractors and how to apply the tendering process. They also demonstrate the way of receiving the bids and how to be analysed to finally reach the selection of a contractor by an authorized committee which decides based on the mentioned steps.

This undertaken tendering process has been condemned by many researchers (Stein *et al.* 2003; Al-Reshaid et *al.,* 2005). This is because it shows deficiencies in the relationship between owners and contractors. The 'low-price tendering processes' is

responsible for adversarial relationships among project parties. The contractor that won the selection competition pays the full attention on the project profit or loss in the first place. The contractor goal is on the contrary of the owner aim. Lack of trust and confrontation associate this selection process due to different attitudes. Moreover this process may lead to conflicts and disagreements between project parties as a result of accepting the lowest bid. Researchers emphasized on involving technical side of contractors rather than focusing only on the lowest price.

Researchers suggested selective tendering that is thoroughly discussed with contractors reaching profitable margins that satisfying both parties (Love *et al.,* 2008). This process can sustain trust and corporation and brings parties to a commonplace, ultimately may enhance understanding which affect reducing the responsibility of future disputes. This is because procurement and tendering process are considered as critical success factors in construction projects (Chan *et al.*, 2004; Toor and Ogunlana, 2009).

5.4.3. Public Works Contract

To have a universal contract for all public projects, the Ministry of Finance established the Public Works Contract PWC. An evaluation of this contract was made by Ibn Humiad (2005). Surprisingly the result showed that it encountered a number of deficiencies. Also Zain Al-Abedien (1995) believed that PWC is not in the favourite of contractors such that they accept or refuse no means of fairness or negotiation in decisions between parties. Contractors are supervised by administrative bodies that imposing jobs without choice on the hands of contractors. Apart from this, ambiguousness of PWC is another feature that causes conflicts between parties leading to disputes and project's abundant. This contract directs risks on the side of contractor; the contractor is looser than winner.

To compare the PWC with FIDIC contract, Aleroan (2008) conducted a study in which he listed 14 factors of difference between both contracts as illustrated in Table **5.**1. The comparison revealed weakness and deficiencies of the PWC. For instance dealing with disputes, the PWC stated that the Board of Grievances is the only body for dispute resolution while FIDIC showed more professionalism. Also regarding risk allocation

the PWC allocates risks on the contractor side whereas FIDIC directs risks on both owners and contractors.

5.4.4. Disputes in the Saudi public construction

As discussed in chapter two, construction industry is associated with risks and notable increase in uncertainties (Ashworth and Hogg, 2007; Chin, 2003), and becoming more complex and dynamic. Also fragmentation and short-term operation nature are aspects that have been inherited in construction industry (Chan and Chan, 2004). The Saudi construction environment is not exception from construction contexts in other countries. Conflicts, delays and disputes take place in an increasingly rate due to booming in governmental projects. However, the kind of dispute differs in nature and frequencies from other countries due to cultural differences and different nature of projects. Factors influences the incidence of disputes in different countries include culture, religion, economy and environmental issues (Weddikkara, 1997).

Table 5.1: Public Works Contract versus FIDIC Contract, (Aleroan, 2008).

Aspect	FIDIC Contract	Public Works Contract (Governmental)
Contract Base	Engineer	Employer
Engineer's Authority	Engineer has full authority with fair and independent role	Engineer follows instructions of the Governmental authority
Extension of time and cost increase	Engineer can assess the extended time cost, due to unexpected conditions (clause 12)	Governmental authority is the sole party to determine extended time and costs.
Arbitration for settlement of disputes	Conciliation or arbitration according to ICC rules or UNICTRAL is the way for settlement of disputes (Clause 67)	Board of Grievances is the only way for resolving all disputes or claims
Cash flow estimate	Contractor has to submit cash flow estimate before signing the contract (Clause 14)	No obligation of the Contractor to submit cash flow estimate
Risks	Employer and Contractor sharing risks (clause 20)	Contractor bears all risks
Access to site	Engineer estimates time and cost if the Contractor has no access to the site. (clause 42)	Contract is postponed if the Contractor has no access to the site or extended time in some cases.
Climate Condition Changes	Interim Determination of Extension by the Engineer	Governmental Authority is the only decision maker if Contractor faces unexpected of force major conditions.
Notice of Claims	Contractor submits notice of claim to the Engineer within 28 days of damage occurrence (clause 53).	All claims are submitted at the end of the project.
Provisional Sums	Employer determines the provisional sums for contract budget before start of work (clause 58)	10% of the contract value needs special administrative procedure to be credited.
Special Risks	Increased costs arising from special risks reimbursed to the Contractor (clause 58).	Not applicable
Default of Employer	Default of Employer may cause suspension of work or contract termination plus damages reimbursement (clause 69)	Not applicable
Work Suspension	Contractor has the right to suspend work in case of payments delay (clause 69)	Not applicable, The Contractor has no right to suspend work for any reason.
Changes in contract price	Changes in design and specifications cause change in contract price (clause 70)	Not applicable
Currency and rates changes	Change of currency or rates of exchange could be reimbursed (clause 71)	Not applicable
Insurance of works.	Must (clause 21)	Not applicable and performance board submitted before start of work by the contractor.

The Saudi construction context, as a developing country, is described as low standard coupled with weak and unqualified manpower. Also government's projects cover wide range of projects and infrastructures that are big in size and complicated in nature. Contractors working with the government are diverse in experience and power; they are large in number and different in culture and background. Parties like owners, contractors, consultants and subcontractors have conflict benefits towards each project. All of these aspects build a ground for more conflicts and disputes between different parties in the absence of dispute awareness and improved practices.

Contractual issues in public construction affect disputes and dispute resolution. The introductions of new contract laws into the Saudi construction faced expected difficulties. Russel (1975) pointed out to the aspects of the Saudi Legal System that follows Shariah law. He mentioned the worries among international partners when it comes to disputes. Amin (1985) also reported these difficulties but noticed that the Saudi Legal system had changed due to the interaction with international contracting. And as a consequence government organisations worked towards adapting between Shariah law and the new contract laws such FIDIC that is creating a kind of balance to serve the new industrial development. The courts were criticized by that they were not professional to deal with dispute resolution especially the hierarchy system found in courts which make them inexperience to deal with disputes (Amin, 1985). Although the dispute litigation has undergone notable improvements, FIDIC law is not yet approved in the public construction.

Most of disputes found in public construction associated with projects delays. A number of studies have shown that around 70% of projects in public construction were delayed (Al-sultan, 1987; Falqi, 2004; Assaf and Al-Hejji, 2005). This can be related to the poor performance accounted to the current practices. Most of construction disputes are addressed to the 'Board of Grievances' where it represents the legislation authority for such cases. Normally, the Public Works Contract (PWC) has clauses mentioning the Board of Grievances as the only body to be involved in the case of dispute. In fact the process of dispute resolution and dispute legislation is quite new in the Saudi construction. Consequently, dispute legislation takes longer time and brings

dissatisfaction among dispute parties. Al-Reshed (2002) conducted a study on court cases dealing with disputes. The study revealed that the time taken in courts ranged from (1to 8) years with 92% of the investigated cases took more than a year.

The researcher has noticed the lack of dispute research within the Saudi construction. This makes it difficult to explore causes and roots of disputes in this context. This apparent gap in dispute knowledge was behind the aim of this study. However, it can be concluded out of reviewing the available information that disputes and conflicts are associated with public construction more than other sectors due to several reasons. The first reason is that small and weak contractors are incorporated in public construction. Most of these contractors are unqualified and seek profit in the short-term rather than for the long-term. Secondly, regulations and laws are weak, in particular dealing with dispute resolution, and not coping with fast growing industry. The third reason is the lack of training and development among managers, engineers and workers in this sector.

5.4.5. Leadership in the public construction

The challenges facing public construction were discussed in the previous sections. By highlighting these challenges and obstacles, the need of qualified and effective leadership becomes a matter of importance in public construction to deal with deficiencies accompanied various challenges (Keegan and Hartog, 2004). Project management literature agreed that leadership is a critical success factor in all construction organisations (Odusami, 2002; Long *et al.,* 2004; Toor and Ogunlana, 2005; Toor and Ofori, 2006c). Several leadership styles were suggested in construction organisations of public and private sectors. Reviews on these leadership styles were mentioned in chapter three.

Public construction requires leaders with specific competencies and leadership skills rather than focusing on technical side. These qualified leaders are highly needed to deal with the aspects of deficiencies that are displayed particularly in public projects such as project delays, conflicts, failures and lack of team spirit among people. The main job here to lead people and organisations with morality and inspiration to motivate

subordinates to achieve common set of organisational goals. In this regard, Anderson Jr and Polkinghorn (2008) reported that leaders of public construction have to be concerned about three factors: (1) awareness of public perspectives of projects; (2) responds to political and public demands and (3) involve conflict prevention processes and management practices, tools and strategies to avoid disputes.

Since leadership is linked to many organisational factors like national culture, economic status and other environmental factors, effectiveness of leadership can reflect on organisational professionalism. Effective leaders influence organisations and members for better results (Bass, 1998; Kotter, 1998; Schein, 2004). To achieve this, leaders must seek for better leadership styles that can make a difference in project management practices through inspiring people to display their real potentials. This study presents the importance of adopting specific leadership style among leaders to cope with new challenges. It addresses the needed awareness about the different styles and what are the effects of adopting new effective styles on organisational practices and members' behaviours. Lack of research is found concerning leadership in Saudi public construction. However it has similar characteristics as other public contexts. This study is concerned with the leadership aspects that are linked to the problem of dispute, especially that the key qualities and skills that are needed to effectively deal with minimizing disputes in the owner organisations in particular.

5.4.6. Organisational culture in the public construction

The previous section highlights leadership factor in the public construction and in this part the impact of organisational culture is presented. As mentioned regarding scarcity of leadership studies in the public construction literature, studies of organisational culture in public construction are rarely found. It is of importance to recall that organisational culture and leadership are linked to each other (Schein, 2004); beside the cultural awareness among people working in this sector is quite low. This is referred to the lack of people training and development. Organisational culture can be seen from the characteristics of public construction which lead to weak performance, adversarial attitudes, conflicts etc. Referring to its key impact on the practices of construction

organisations in the public sector, organisational culture can be a source of the witnessed weak performance found in this sector (Denison 1990; Kotter and Heskett 1992). It has been reported that public construction is associated with conflicting culture "*There are already clear indications that some end-users, both governments and industrial corporations have become disillusioned with the conflict and confrontation that characterise many construction projects, and are moving to induce a cultural change in the industry*" (Construction QLd, 2001).

In the case of public construction, it can be said that if effective leadership was prevailed, strong organisational culture could be found. The reason is that leaders determine organisational culture by values, beliefs, strategic decisions and inspiration. They shape cultures and define the path taken by organisations. However, weak leaders influence negatively organisational culture by imposing undesired actions or behaviours. The consequences of these behaviours are shown in the 'a default position' whereby the majority of organisations in public construction do the previous practices which involve the same previous mistakes.

The mode of organisational culture varies between private and public construction. There exist contrasting differences between behaviour, values and attitudes reflected by employees in two different work environments and these differences can bring more understanding to the culture of the context investigated by this study. Scholars and researchers tend to believe that the personnel employed under these two types of organisations exhibit some vital differences. The differences in the behaviour and work environment are precisely related to organisational culture followed by these work environments (Baarspul, 2009).

The employees from private or public construction organisations reflected minimal differences in the context of general values. The managers working in public sector construction industries are more risk taking when compared to their counter parts. Organisational culture had no role to play in the risk taking attitude of the public sector managers (Behavioural Training for the Construction Sector 2013). The decisions taken

by managers in private and public sectors are supported by different focus points, which are evolved from the difference in the cultural aspects followed by organisations.

Personnel involved in public and private construction industries differ on the grounds of personal values. The justification to this point can be the difference in the tenure and the nature of the construction job. The younger managers in the construction industry had lesser differences, whereas the experienced personnel showed more differences. When the health issues and aliments were compared in the two sectors, it was observed that workers in public sector construction had more health issues as compared to private sector employees (Construction industry, 2013). The level of stress was more in public construction sector employees. The individuals, who demonstrated 'risk aversion behaviour', tend to choose public sector construction jobs in comparison to private sector jobs.

Moreover, organisational culture in public construction is characterized by high degree of accountability, while private construction has a lower level. This trust and authenticity are comparatively lower in public construction than private construction because of the pressure on unnecessary procedures and integral self-governing government officials in the business affairs. In the similar context, it is found that public construction projects are more bureaucratic in relevance to different features including record keeping, rigid procedure and rules, hierarchy and specialisation (Lam and Liu, 2005).

Another point of difference between both sectors is expressed in pay satisfaction. In this context, it is found that employees in public sector are less affected by the demographic characteristics as compared to private sector. Public sector's employees (engineers) are not satisfied with remuneration policy in the construction sector, just like private sector employees. It is also found that dimensions of pay satisfaction are highly influenced by all four organisation cultures defined by Cameron and Quinn in private construction industry. On the other hand, in public construction, clan culture type of organisational culture influences the pay satisfaction (Sabow, 2011).

An equally important difference between organisational culture of public and private construction can be indented and studied in terms of job related differences. It has been argued by researchers that in public construction, employees are less motivated towards extrinsic component (money) of motivation in comparison to private sector employees. This is because civil servants tend to be motivated towards the hierarchical structure of organisation and get motivation through associated power with the position (Baarspul 2009). Besides this, workers in public sector construction enjoy a higher degree of job security as compared to their counterparts in the private sector construction.

It has also been indicated through several research findings and empirical evidences that public sector's workers have slightly low level of satisfaction in terms of creativity and innovation. On the other hand, workers in private sector enjoy high level of satisfaction, which is the result of wide career development opportunities. It should be noted here that job involvement between the public and private sector employees of construction industry also varies in terms of planning and decision- making. The employees of public sector do not have high degree of involvement due to the hierarchical structure in this sector. In contrast, workers of private sector report a relatively high level of job involvement due to the structural advantages related with them (Behavioural Training for the Construction Sector, 2013). The level of satisfaction between workers of both sectors also differs in terms of various components of job satisfaction. Employees of private sector tend to measure their satisfaction in terms of reward and recognition for work. Meanwhile, workers in public sector express their level of satisfaction with regard to the job security.

Experts called for change in organisational culture to cope with current challenges. Cooperative Research Centre for Construction Innovation in Australia, CRC (2007), reported that without a real cultural change supported highly by leaders, disputes will not be minimized in construction organisations. The CRC furthermore insisted on the role of leadership in owner organisations to find un-adversarial culture that has healthy relationships with all parties.

Organisational culture of the Saudi public construction also suffers from the same scarcity of studies in this topic. As a government sector, it has the features of hierarchical cultural characteristics although the influence of national culture is exhibited more than what is found in other countries. It is important when discussing culture in organisations to refer to the values and beliefs of the Saudi culture which are strongly linked to the behaviours of organisations' members.

5.5. Summary

Based on the overall review of the Saudi construction industry, it can be said that it is the largest and dominant sector in Saudi Arabia. Thus, it can be concluded that despite facing the various challenges from the constraints resulting from worldwide recession and inflation, this sector has been able to create as well as maintain a distinctive position for itself in the construction industry of the world. Nevertheless, current practices have to be changed in terms of leadership, cultural characteristics and individual behaviours to cope with various challenges.

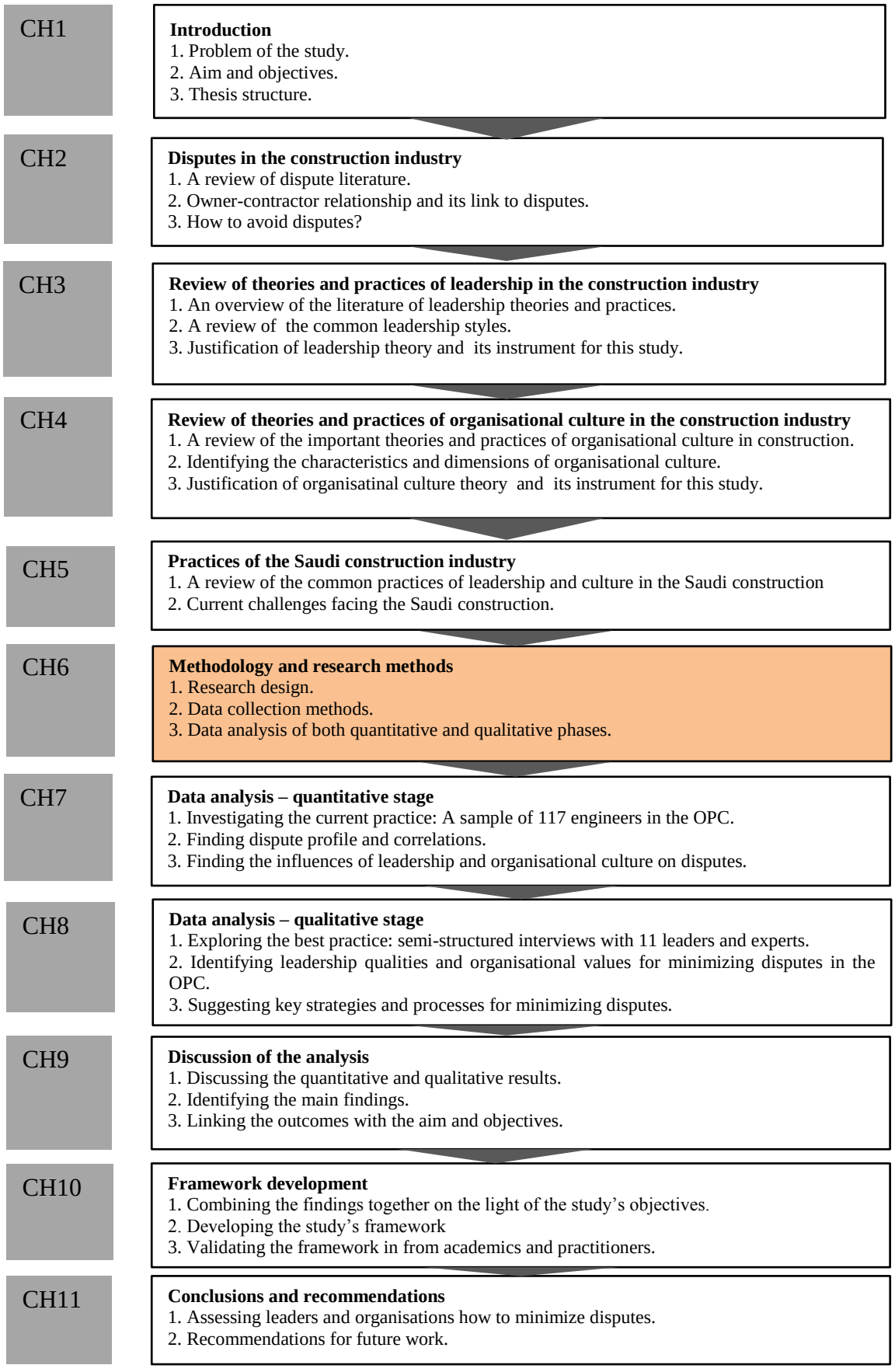
It is concluded that approximately 40.4% of Saudi people work under this sector. The positive outlook of the Saudi construction is one of its unique characteristics that attract investment towards this sector. There exist various factors that drive the construction industry, like high population growth, high liquidity position, oil revenues, and modifications of housing and mortgage policies. Moreover, it is inferred that the government also plans to comply with green standard laws to promote green construction in Saudi Arabia.

Although top contractors in the Saudi context contribute greatly in the development of infrastructure and mega projects, weak contractors have participated in conflicts and delays and considered as a source of emerging disputes. The relationships between owners and contractors are associated with tension and misunderstandings and, in most cases, tend to confrontation which increases the possibility of disagreements and disputes. Overall, it is concluded that the nature of the construction sector is quite unique, as it serves a number of opportunities for the interested investors and strongly

contributes to the economic development. Current practices show deficiencies in leadership and organisational culture that need prompt changes. The various challenges have also been mentioned in the sections above and also the opportunities have been discussed.

Apart from this, the different practices followed by the construction industry in the specific context of public constructions have been discussed with a specific review of disputes and dispute resolutions taken place. Dispute legislation procedures are highlighted through mentioning the governmental regulation related to dispute with an overview on the public work contract PWC which is the universal contract of the Saudi public construction. The next chapter discusses the research methodology in the light of the analysis of the relevant literature review (chapter 2- chapter 5) and research questions outlined in chapter one.

6 Chapter six - Methodology and research design



6.1. Introduction

Research methodology is defined as the approach that includes processes of theoretical foundation, data collection and analysis of data (Collis and Hussey, 2003). It may be considered as a thorough strategy that starts from setting research questions to be answered and ends at finding conclusions or answers to the assigned questions (Naoum, 1999). Commonly, specific stages are used by social researchers for research design and research methodologies that reflect the best ways found in literature (Arbe, 1993). These stages can be summarized by five points. Firstly, research starts by setting general objectives which are refined with the progress of research to specific objectives. Then, literature is critically reviewed to have a full understanding of the investigated subject and to find the research questions that need to be answered. A conceptualization is made to the main parts being investigated developed by detailed review of literature and improved research's objectives. Research questions or hypothesis are then designed based on the previous stages. The final stage is selecting the needed research instruments and techniques to achieve the attained objectives.

The main aim of this study is to investigate the influences of leadership style and organisational culture on disputes in public construction. This is accomplished by exploring current practice and best practice through examining correlations and identifying key factors for the purpose of developing a reliable framework to minimize disputes. The term "best practice" is used regularly in business and project management. The Business Dictionary defines best practice as "*Methods or techniques found to be the most effective and practical means in achieving an objective (such as preventing or minimizing pollution) while making the optimum use of the firm's resources*." Nonpoint Source Management Programs in Texas saw Best Management Practices (BMPs) as "*those practices determined to be the most efficient, practical, and cost-effective measures identified to guide a particular activity or to address a particular problem*." Other researchers link the term to high performance, for instance Bogan (1994) described it as optimum ways and processes that can lead to high performance. In this study, this term is used to refer to the methods and processes

accumulating knowledge from research and experiences from practice that contributes to the improved excellence of an organisation.

To adequately meet this aim an effective research methodology is highly needed to be employed since it has been reported that no specific methodology were proposed for construction management (Runeson, 1997; Seymour et *al*,. 1998). Therefore, this chapter presents the suggested methodology and the chosen research design that can meet the research aims and objectives mentioned in chapter one. The adopted research methodology is discussed in detail which shows how the research is conducted providing an insight into the sampling method and the sources of data collection. The justifications of choosing the research methods are also included as well as the validation of the used instruments.

6.2. Research Philosophy

Considering the philosophical issue is vital in research to increase the quality of research. Philosophical thinking helps the researcher to provide a framework to link between the ideas of what we think and what we do (Paul, 1993; Honderich, 1995). Easterby-Smith *et al*. (1991) reported that understanding the philosophy of research can help the researcher to clarify more alternatives of designs and research tools. Social science research is described as *the "the science of people or collections of people, such as groups, firms, societies, or economies, and their individual or collective behaviours."* (Bhattacherjee, 2012). In this regard, the two most popular philosophical positions of social science research are ontological and epistemological considerations (Bryman, 2008). Having a philosophical framework can assess the researcher to work with the proper research methods, Figure 6.1.

6.2.1. Ontology in research

The ontological consideration is related to the 'nature of knowledge' (Guba, 1990; Fellows and Liu, 2008). It is related to the perspectives of the researcher towards the research; objectivism and constructionism, Bryman (2008). Another perspective for

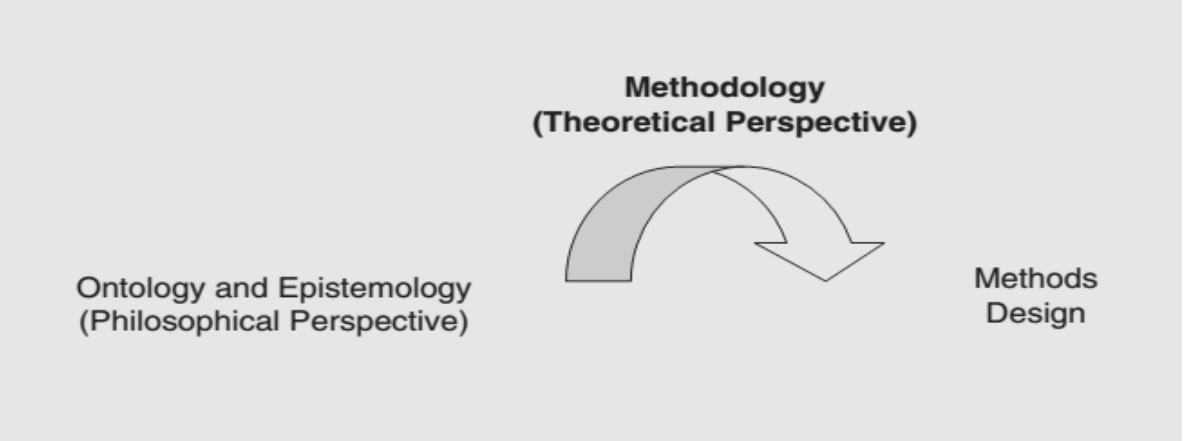


Figure 6.1: Methodology is a bridge between philosophical framework and methods design (Adopted from http://www.sagepub.com/upm-data/34087_Chapter1.pdf).

ontology is whether the researcher recognizes the reality itself or reality is found out of the researcher thinking. Objectivism underlines that the social phenomena is independently linked to social actors while constructionism implies the social phenomena are being continuously found by social actors. Also, Miller and Brewer (2003) reported that ontology concerns with exploring the nature of social reality and about the existing of things and how they are existed.

6.2.2. Epistemology in research

To achieve adequate understanding about the philosophy of the research, is associated here. Epistemological consideration deals with "how we know'' and what is the proper method to acquire knowledge (Bryman, 2008). It is a concept that is concerned with the nature of knowledge and the means to have this knowledge. In social science research, epistemology is found in the categorization of positivism and interpretivism. It is important to understand that epistemological consideration requires the researcher to be closer to the people participated and personally stay longer time in the field of study to gain adequate understanding (Creswell, 2007).

6.2.3. Research paradigm

In doing scientific research, a firm position of the researcher of how to see the world and people is vital. Research paradigm is defined as *"the basic belief system or world view that guides the investiga tion."* (Guba and Lincoln, 1994). Bryman (2004) had a different view for research paradigm in which he expands its concept to reach the results of the conducted research, *"a cluster of beliefs and dictates which, for scientists in a particular discipline, influence what should be studied, how research should be done and how result should be interpreted"*. In other words, it is about the progress of the research based on philosophical considerations and assumptions found in people's nature and knowledge (Collis and Hussey, 2003).

Main research paradigms prevailed in current social science is positivism and interpretivism. The purpose of research paradigm is to guide the researcher to conduct the research and how the parts are linked to each other (Denzim and Lincoln, 2005). Once the researcher establishes the research paradigm, determination of the compatible methodology comes afterwards. The main points to be understood in the research paradigm as mentioned in many studies like (Healy and Parry, 2000; Denzin and Lincoln, 2005) are:

I. Axiology: What is the degree of morality in the researcher work?
II. Ontology: What is the researcher approach to see reality, Objective or subjective approach?
III. Epistemology: How the researcher "know what is needed to be known"? What are the methods used to achieve this knowledge? How this knowledge has been verified?
IV. Methodology: How the researcher does what is intended to be done? What are the needed processes, methods and approaches?
V. Methods: How can the researcher conduct the research? What are the needed techniques?

6.2.4. Positivism

Positivism is a research belief in which a researcher can find reality by the use of research instruments in order to answer how we know (Blaxter *et al.,* 2008). The key concepts of positivism are that social reality can exist independently of individuals and should be measured objectively by the proper research methods (Wisker, 2001; Lincoln and Guba, 2000; Collis and Hussey, 2003). Another important feature of this approach implies that during examining the relationships between variables, it makes more focus on certain variables that have potential relationships (Remenyi, 1996). From epistemological point of view of positivism, it is possible to explain the real world in natural ways through using objective methods. Positive approach which is used broadly in quantitative methods demonstrating that social world should be investigated from a scientific point of view. It starts by testing theories to define hypothesis in order to understand phenomena (Easterby-Smith *et al.,* 1991).

6.2.5. Interpretivism

Interpretivism is a philosophical approach that describes the reality and the meaning of individual's behaviours (Remenyi *et al.,* 1998). In addition, interpretivism considers that the world is social place, interpreted by people and it is not objective (Husserl, 1965, cited by Kelliher, 2005). In this approach, the researcher explores people interpretations and uses these experiences to find the impact on the research problem. In other words, it depends on the researcher's subjectivity to construct understanding through interpretations by interaction with others. Interpretive approach is mostly associated with qualitative methods to understand the reality as socially constructed rather than objective view. In this approach the researcher set out assumptions to understand phenomena by human nature people involved in these situations.

Saunders *et al.* (2003) suggested an interesting way to help new researchers to figure out how research is designed. Figure 6.2 illustrates what is called the research process "Onion" in which they combined the research approaches and techniques used in

research. Five layers were designed namely, research philosophy, research approach, research strategy, research time allocation and data collection method.

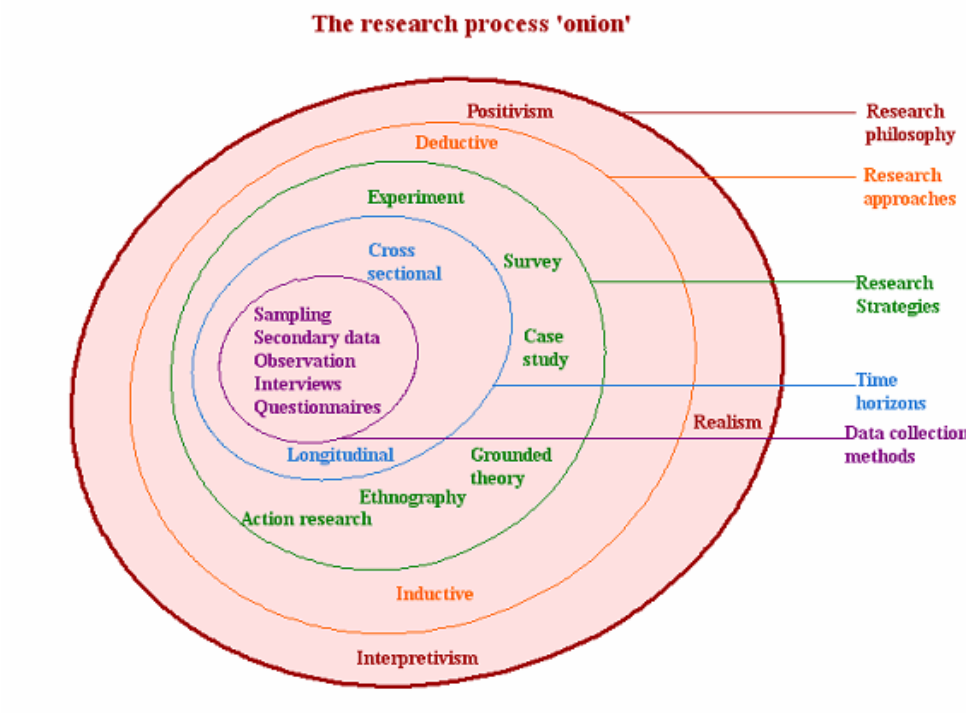


Figure 6.2: The research process "onion", (Saunders *et. al*., 2007).

6.2.6. Quantitative and qualitative approaches

In determining the proper research methodology, two main approaches are considered namely quantitative and qualitative approaches. Both approaches implement different research strategies that are basically depend on epistemological and ontological concerns (Bryman, 2008). Quantitative approach is an objective method designed to test a theory or a hypothesis that include many variables in order to investigate concepts or facts by collecting evidences and examining relationships (Fitzgerald and Howcroft 1998; Naoum, 2002). In contrast , qualitative approach evolves about an understanding process that explore social and human attributes (Creswell, 2007); and concerns more on people experience in terms of place , events, processes and behaviors (Amaratunga

et al., 2002). Also qualitative research tend to explore facts by answering questions of how? and why? (Perry, 1994).

Quantitative approach is based on positivist paradigm and objectivist epistemology while qualitative approach concerns about the interpretivist paradigm subjectivist epistemology. Also quantitative takes in its approach deductive method while qualitative tends to the inductive method. From empirical point of view, quantitative techniques can be described as positivist approach and qualitative techniques as interpretivist approach. Noticeable debate in literature is found between quantitative and qualitative approaches yielding to what tis called 'paradigm war' (Tashakkori and Teddlie, 1998; Padgett, 2004; Armitage, 2007). Yet both approaches have strengths and weaknesses and can be used effectively in different tasks for different research objectives. Table 6.3 highlights the main characteristics and weaknesses of both approaches. Although many differences can be found in literature between these approaches, it can be concluded that quantitative methods are used to answer questions related to correlations of specific investigated variables to have an explanation or prediction based on these variables; whereas qualitative techniques are used to answer questions about complex phenomena to provide adequate understanding from the respondent's point of view (Denscombe, 2003; Leedy and Ormrod, 2005).

6.2.7. Pragmatism

Another research paradigm that has been widely used as an alternative to positivism and interpretivism is 'pragmatism' (Tashakkori and Teddlie, 1998). Pragmatism implies both objective and subjective point of view in describing knowledge (Hanson *et al.,* 2005) and to do this it utilizes all available ways to understand the problem of study (Creswell, 2009). This philosophical approach is used in scientific research employing both inductive and deductive processes to explain the 'real world' (Maxcy, 2003). Pragmatism paradigm is used in mixed methods where both quantitative and qualitative methods are combined (Johnson and Onwuegbuzie, 2004). Therefore, as discussed

Table 6.: Characteristics and weaknesses of quantitative and qualitative approaches, (Park and Mauch, 2003; Abdullah, 2003; Neuman, 2006).

	Quantitative	**Qualitative**
Characteristics	Based on induction method	Based on deduction method
	Used to test theory.	Used to build theory
	Collect data to test relationships between variables in accordance with theory.	Study issues in-depth and detail to understand people‘s perceptions.
	Mostly deals with large samples	Mostly deals with mall samples
	Hard data, structured, large sample size	Soft data, descriptive, less Structured
	Use statistical analysis by utilizing charts, tables and other means discussing how the results are related to the study’s objectives	Use nonstatistical analysis to find themes or generalisations from evidence and organising data to present to meet the objectives
	Use numbers in statistics and aggregated data	Use words in narratives and individual quotes
	Fast and economical and where statistics are obtained from large samples, they may be of considerable relevance to policy decisions.	Ability to monitor change process over time understand people‘s meaning which may contribute to theory generation.
Weaknesses	-Tend to be rather inflexible and artificial -Not very effective in understanding a process -Not very helpful in generating theories	-Data collection can be tedious and require more resources -Analysis and interpretation of data may be more difficult -Harder to control the pace, progress and end-points of the research process.

previously, positive paradigm holds the objective method which deals with quantitative research and interpretivism rejects objective method considering the world as socially constructed and is associated with qualitative research. Pragmatism, on the other hand, represents single paradigm that utilizes ‘mixed model approach’ where both quantitative and qualitative methods are combined together (Armitage, 2007; Creswell, 2009). Therefore, instead of utilizing one method pragmatic researchers focus on ‘problem-centered paradigm’ to provide an integrated framework that uses multiple methods in the adopted research paradigm.

6.2.8. Rational of the research paradigm

In the previous subsections research philosophy and different research paradigms were highlighted to ground the justification of the adopted paradigm. This research is humanistic in nature and deals with behaviours, attitudes and practices of people

working in construction organisations and the adopted research paradigm should take in consideration this issue. Overall, this study is considered as an exploratory research where is the main aim here is to explore new concepts and ways rather than testing existing theory. Therefore, the study needs to investigate the practices of leaders and organisation's members in the OPCs to answer the assigned research questions.

Therefore, the research paradigm used in this study is 'pragmatism' in which both positivism and interpretivism are adhered where quantitative and qualitative methods are incorporated in which both methods are compatible (Howe, 1988).This pragmatic approach takes advantage of subjective and objective knowledge and instead of focusing on the research methods themselves, it emphasizes on understanding the study problem through utilizing all possible approaches (Creswell, 2009). Raftery and Walter (1998) emphasized in choosing a proper approach in the research of construction management that take into account the problem of the study and the required data; they highly recommended pragmatic approach to have effective and practical outcomes.

Mixed method approach is adopted through employing both quantitative (the survey) and qualitative (the semi-structured interviews). The emphasis in using mixed method was grounded in literature and has been described as:

- "Robust analysis, taking advantage of the strengths of each" (Ivankova *et al.*, 2006)
- "More useful, rich and valid data to address a research problem" (Creswell, 2009)
- "Allows for new modes of thinking, initiated by attending to paradoxes that emerge from the two data sources" (Rossman and Wilson ,1985) .

Therefore by considering the research questions and objectives of this research, it was believed that mixed method approach can provide a very appropriate choice. This methodology is used to study the influences of leadership style and organisational culture on minimizing disputes.

6.3. Research design

After adopting the appropriate research paradigm, the next step is research design. Research design is considered as a framework to collect and analyse data (Bryman, 2008). Considering the research problem (section 1.3) and research objectives (section 1.5), the researcher is required to select the effective methodology that includes wise decisions regarding the undertaken research which can help in avoiding obstacles that may occur during the research implementation (Royer and Zarlowski, 2001; Sekaran 2003). Accordingly, research design considers the methods involved in research methodology to identify the main stages to form what is called 'a logical structure of the inquiry'. Whilst the above description of research design is more logical, many researchers assured that research design primarily requires a particular method of data collection (De Vaus, 2001).

As introduced previously, this research adopts mixed-method as the main approach of research design. Five stages are incorporated to form the research design as shown in Figure 6.3 and Figure 6.4. The first stage comprises of reviewing the relevant literature of the main constructs employed in this study namely, leadership, and organisational culture and construction disputes. In addition the Saudi public construction is overviewed to give important information about the field of the study. At this stage the research is largely inductive, particularly in the analysis the findings of literature review, which is important to form the basis of the conceptual theoretical framework for the conducted relationships. In the ongoing stages and after identifying the research problem, it is intended to integrate both inductive and deductive approaches to strengthen the research findings. The second stage includes the main survey in which the current practice is investigated. In the third stage, the best of practice is explored by interviewing leaders and experts in public construction. The fourth stage consists of developing a reliable framework for minimizing disputes based on the previous stages. Finally, the last stage is to examine the validity of the developed framework.

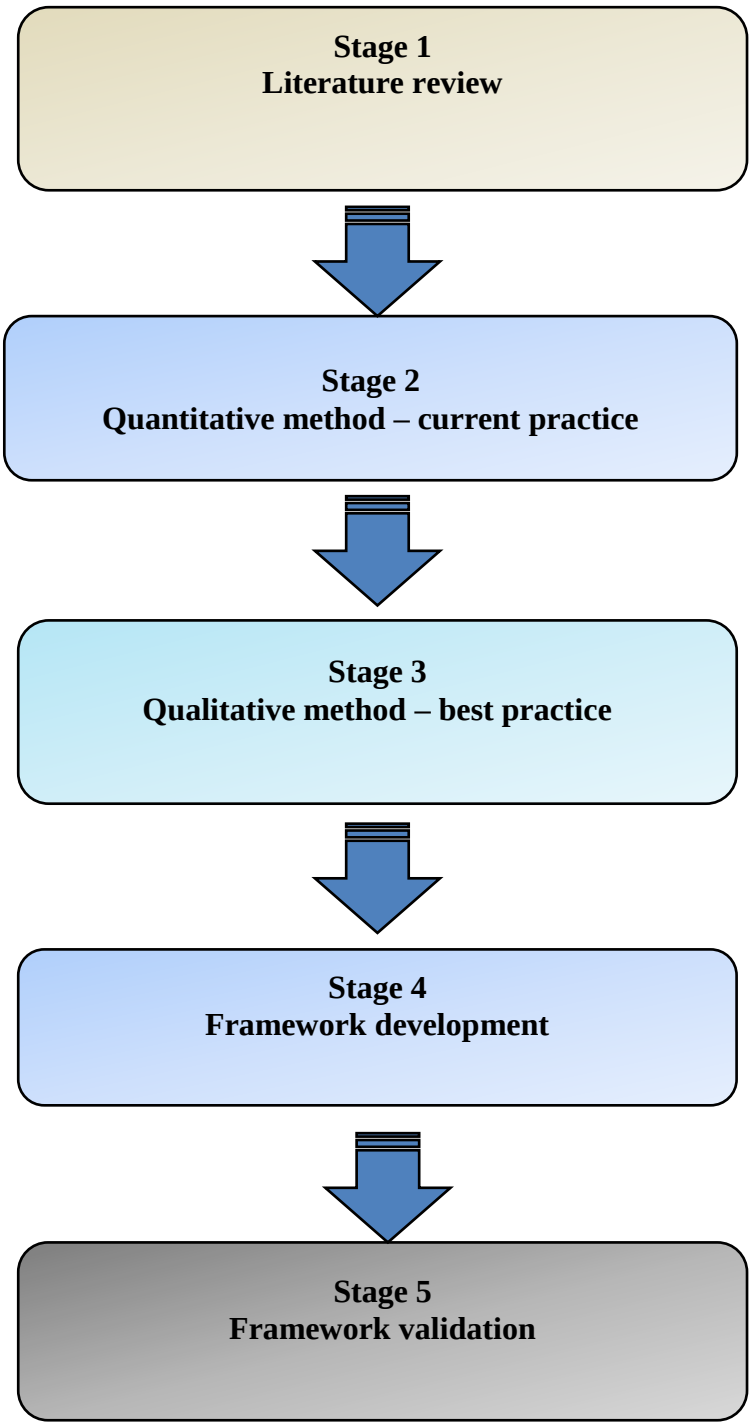


Figure 6.3: The research's five stages.

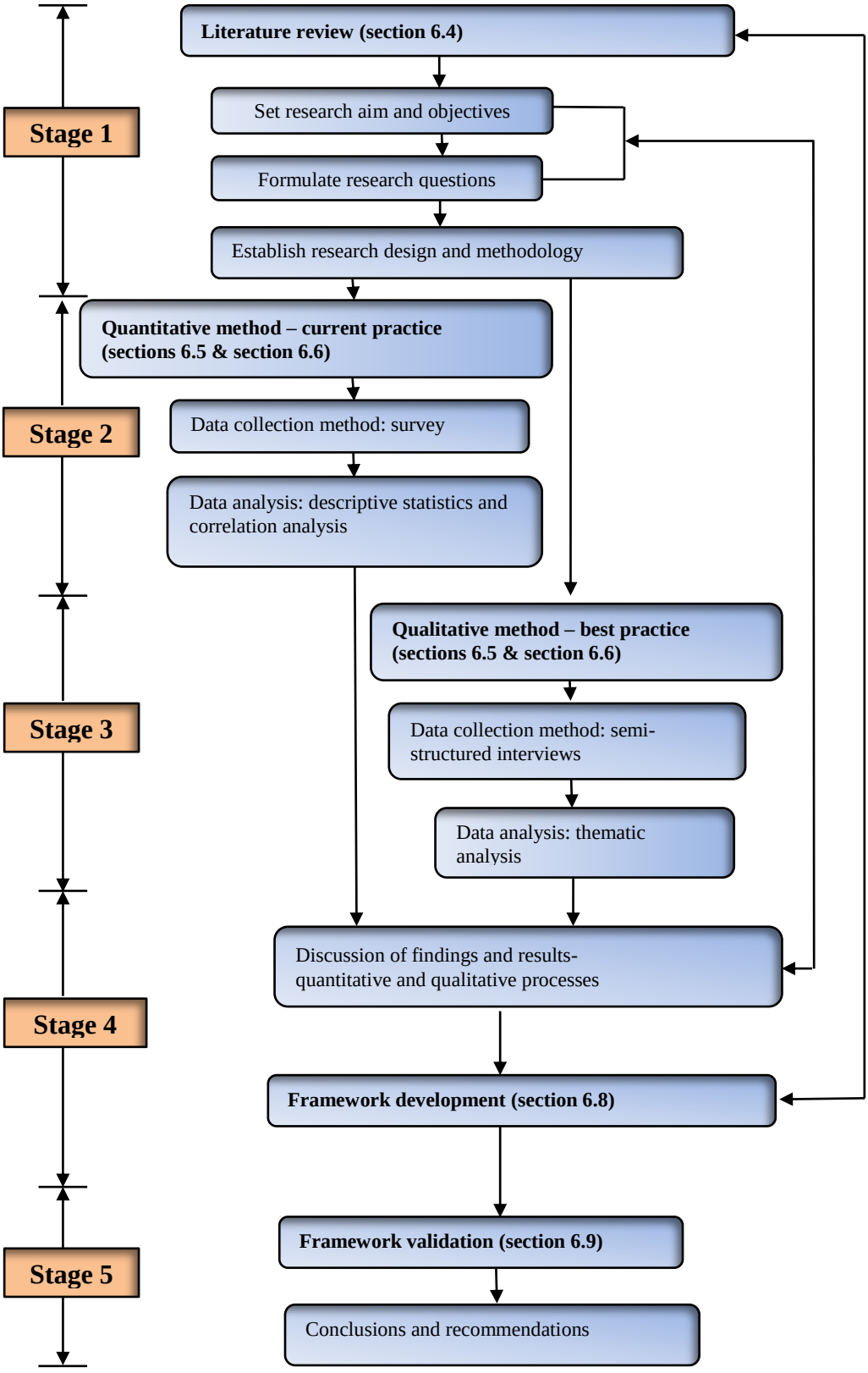


Figure 6.4: Overview of the research design.

6.4. Literature review

The first stage of the research design is literature review. An extensive review of the relevant literature was carried out in the process to understand the researched topic. The main purpose of literature review is to identify the important variables and to address valuable findings linked to previous research for the purpose of filling a gap of knowledge (Sekaran, 2003). To have a thorough understanding of the main factors of the study, it was decided to divide the literature review into four parts:

I. An overview of dispute's research in construction literature.
II. Studying the role of leadership in construction industry.
III. Exploring the impact of organisational culture on construction projects.
IV. A summary of the current practices of the Saudi public construction.

A literature review focuses on analysing the current knowledge which is related to the topic of research and provides adequate background for the researcher. To achieve this, a good review of literature is featured by the following:

1. Form a grounded foundation of the current research by reviewing relevant studies and to reveals contribution that the study accomplishes to fill a gap in the existing research.
2. Present the approaches and processes used in previous studies related to the research problem and shows how the investigations are related to previous research.
3. Highlights the gaps in research that needed to more investigations and assess researchers to bridging knowledge and practice.
4. Helps in providing basis for research factors which are incorporated in developing the proposed framework.

6.5. Data collection methods

After reviewing literature, stage two (quantitative process –current practice) and stage 3 (qualitative process- best practice) are implemented with the insight of research objectives as indicated in Figure 6.4.The adopted mixed research approach implies data collection of using quantitative and qualitative methods. In the quantitative method, the current practice of public construction is investigated to meet objectives I and II. The questionnaire survey is used as a quantitative technique to obtain facts, opinions and views from a certain sample of people (Naoum, 2004), and to generalise from a sample to population reflecting practices or behaviours to a wider range (Babbie ,1990). Despite the popularity of this technique in research, the response rates vary based on the nature of research and the accompanied circumstances of participants. In most cases, surveys are associated with low response rate (Fellows and Liu, 2008; Kamara *et al.* 2001). In this regard, Root and Blismas *et.al.,* (2003) suggested a number of recommendations to improve the survey's response rates. Some of the applicable suggestions were adopted in this study like structuring the survey to have closed questions and to design comprehensive covering letter. Surveys are used in construction literature very frequently due to cheapness and geographical dispersion of projects participants. Therefore the survey technique is used in this study to form a basic source of data collection process.

In the qualitative method, semi-structured interviews are used for the purpose of data acquisition in the best practice stage. This technique is used to understand the research topic and add experiences of the real world to the research (Kumar, 1996). Kvale's (1996) defines interviews as an *"interchange of views between two persons conversing about a theme of mutual interest."* The interviews are conducted with leaders, arbitrators and experts in the public construction context of Saudi Arabia. Certain category is chosen for those interviewees in such that the interviewee must have at least an experience of 20 years working in/with the Saudi public construction; has dealt with owner-contractor disputes; has a top management position in the organisation. The organisation must be an owner organisation or an organisation that has an interaction directly with the owner organisations in the public construction.

This stage meets objective III where the best practice in the OPC is explored through identifying the required qualities and values of leadership and organisational culture to minimize dispute. The interviews are conducted to provide adequate understanding for the potential shift in leadership and culture from the current situation to the best practice. For this reason qualitative approach is believed as more suitable for this kind of investigations to increase the ability of the researcher to deeply understand the concepts being researched and to have more information about people's perceptions (Amaratunga *et al.*, 2002 ; Ahmad and Ali, 2003).

6.5.1. Quantitative method- current practice

This section describes the main quantitative technique used in this study, the survey. It provides detailed descriptions about the pilot study, sampling and the design of the applied survey. The survey was translated to Arabic language. Collecting data in one language and conducting the analysis and presentation of results in another involves impacts on the research quality. The quality of translation is influenced by three factors "*the autobiography of the researcher-translator; the researcher's knowledge of the language and the culture of the people under study*" (Vulliamy, 1990). Back translation is a common techniques involving translating the items, of a questionnaire or an interview, from the source language to the target language. Then a translation of the items is performed back into the source language. Lastly, a comparison is conducted between the two versions until the meanings become clear without any ambiguity (Warwick and Osherson, 1973; Tracey and Greenwood, 1997; Ercikan, 1998).

A number of researchers suggested that in order to eliminate translation problems, it is preferred to pre-test or pilot the instrument in the same cultural context. Pre-testing can provide important information about the perceived interpretation of the item (Warwick and Osherson,1973). In this regard, the role of researcher is highly important in the translation process and in the translation-related decisions that should be taken.

Pilot study

A pilot study was performed to examine the main survey. The purpose of the pilot study is to refine the research data collection methods through examining the content as well as the methods undertaken (Yin, 1994). The goal of pilot study is to test the designed survey in terms of its clarity, time taken to answer all of the questions and the comprehension of participants regarding language and concepts (Fellows and Liu, 1997). Using a translated survey necessitates the importance of piloting this technique

Researchers emphasized on the benefits of pilot study to the instruments used and to the researcher. Surveys are the most important tool for collecting data, yet researchers frequently receive incomplete questionnaires. Several reasons were reported for inadequate completion of questionnaires, for example Khan and Cannell (1957) identified five possible reasons for this deficiency in responses: partial responses, non-responses, irrelevant responses, inaccurate responses and verbalized response.

In this study the pilot study is undertaken to gain feedback from the respondents in the owner organisations of public construction. As Naoum (1998) recommends researchers to test surveys on a smaller sample before distribution, therefore it was decided to distribute the pilot study to a small number of respondents to work as a trial of the main survey. Project managers were interviewed besides completing the survey to obtain feedback regarding the format, time needed to complete it, the language and the understanding of the items. Most of the respondents had no problem in understanding the four parts which roughly took 30 minutes to complete. However, a significant note about the length of the survey was reported and while it was impossible to cut parts from the survey, the number of pages and unimportant spaces were reduced to 8 pages in total instead of 10 pages. The survey consists of four parts: general (demographic) part, organisational culture's part, leadership style's part and dispute's part to become 98 questions in 8 pages. The researcher received valuable comments which resulted in changing and reformulating some of the items.

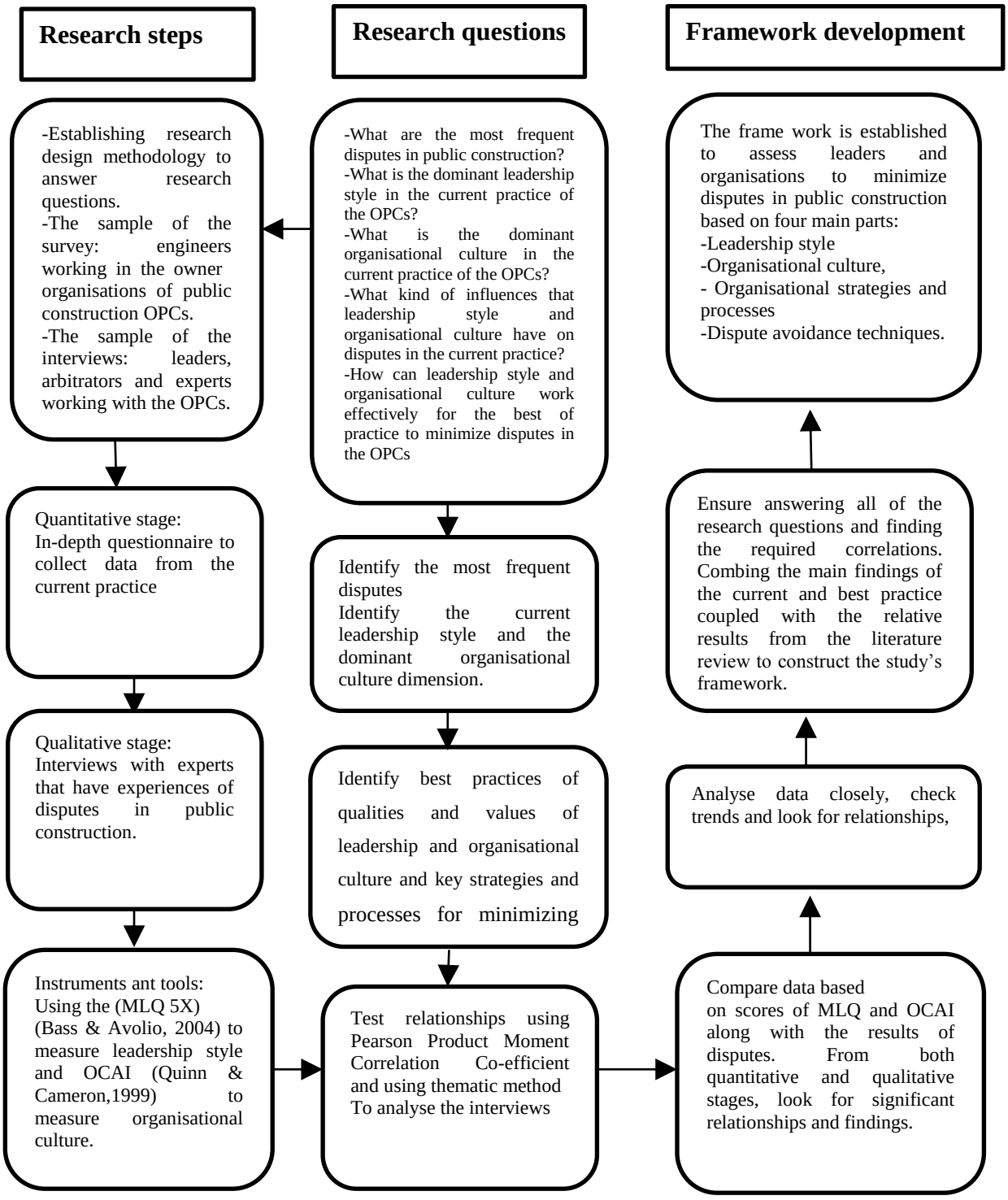


Figure 6.5: The main research steps.

Sampling

Given that the targeted population cannot be contacted, a representative sample can reflect the characteristics of this population (Bailey, 1978). Determining the sample size is a necessary step before collecting the needed data due its direct significance to the research design and which in turn can affect the study's objectives (Peers, 1996). Different approaches were discussed by authors regarding sample size though most of them agree that samples of 30 to 50 are considered minimum samples to be used in the available statistical analysis (Simon, 1978; Cohen and Manion, 1985; Champion, 1985; Baker, 1999). Champion (1985) argued that a larger sample can reflect the population in more efficient way if the researcher seeks more control for the study's variables. Also Collis and Hussey (2003) recommended for larger samples in quantitative processes to have the right answers needed to generalise the outcomes for the population. For this reason, it was decided to reach a particular number of respondents in these organisations to form the research sample.The units of measure are engineers of the OPC to report about the practices of disputes, leadership style and organisational culture that are taken place in their organisations. The reason behind targeting engineers and not involving other organisation's members is that engineers (assistant, supervisors and project managers) deal with disputes and interact with contractors' members more than others and thus can give adequate information to the problem of the study. To estimate the appropriate sample for this study, Cochran's (1977) formula was used as shown by Equation 1 and Equation 2.

$$n_0 = \frac{Z^2 pq}{e^2} \quad \ldots\ldots\ldots\

Therefore, the calculated sample is N=90 for a population of 1300. This represents the minimum sample size. The questionnaires were personally distributed and received depending on personal contacts to save time. Out of 350 questionnaires distributed, 126 received to have 36% response rate. Nine of these responded questionnaires were eliminated due to bias and incompleteness to have 117 valid responses from the covered owner organisations.

The survey

The survey is designed to investigate the current practice of the OPC. This is achieved by identifying the dominant organisational culture and the prevailed leadership style. Then the most frequent disputes are identified to examine correlations with organisational culture and leadership style. Therefore, four parts of questionnaires are constructed in an 'in-depth survey'. The survey and its four parts are shown in Appendix A. These parts include demographic questionnaire, the Multi-factor Leadership Questionnaire MLQ (Bass and Avolio, 2004), the Organisational Cultural Assessment Questionnaire OCAI (Cameron and Quinn, 2011) and the dispute questionnaire. SPSS statistical software is used in data analysis.

The first part is designed to answer questions regarding the respondent and his organisation (age, job position, experience in construction, education). These questions have importance to categorize respondents and to acknowledge their main characteristics. The unit of research used in the survey are engineers who are working in the owner organisations of the Saudi public construction. The owner organisations (project departments) are responsible for managing and supervising construction projects.

In the second part, MLQ is used to measure leadership style (transformational, transactional, and laissez-faire), see Appendix A. The MLQ was developed primarily by Avolio and Bass in the year 1995 to measures the constructs of Bass's leadership model. The MLQ has been used widely in research to study various types of organisations and has shown reliability and validity at different cultures; more than 200 doctoral theses and master's dissertations have used the MLQ 5X (Avolio and Bass, 2004).

MLQ consists of two forms a leader form and a rater form. The leader form is self-rating survey that measures the personal leadership style and behaviour. Whereas the rater form is filled by individuals that may be above, below or in the same level of a leader, in this study, a rater form is used to score a director or a manager by the employees of the OPC that are below the leader. This rater version of the MLQ is titled the MLQ Form 5X (MLQ 5X). This research only used the rater form (MLQ 5X) to enable employees describe their immediate director or manager in their organisations (Avolio and Bass, 1995).

The MLQ Form 5X is a self-reporting questionnaire consisting of 45 questions covering the three leadership styles using a 5-point Likert scale 'not at all' to 'frequently if not always'. This instrument has twelve subscales to measure the three leadership styles reflecting leadership aspects of an organisation (Avolio and Bass, 1995; Howell and Avolio, 1993). Transformational leadership has five sub-scales; each one has four items, including idealized influence attributes, idealized influence behaviours, inspirational motivation, intellectual stimulation, and individual consideration. While transactional leadership involves three sub-scales namely, contingent rewards, active management by exception, and passive management by exception. Laissez-faire leadership is formed with one subscale. In addition; the MLQ has three leadership subscales to measure other leadership characteristics: extra effort, effectiveness and satisfaction to measure the leadership outcomes. With these twelve subscales, the MLQ is utilized here to identify the leadership style of the OPC.

In the third part of the main questionnaire, 'Organisational Culture Assessment Instrument' (OCAI) is used. The OCAI was developed by Kim Cameron and Robert Quinn as a research tool to measure organisational culture (Cameron and Quinn, 1999). This instrument is used in organisations to determine their dominant organisational culture type among the four types of organisational culture. It is a valid questionnaire; that is currently used by 10,000 organisations worldwide (Cameron and Quinn, 1999).The reliability and validity of the OCAI instrument have been tested by many researchers and published in journal papers and books (Maloney and Federle, 1993; Cameron and Quinn, 2011). The OCAI has six dimensions and every dimension

includes four questions that reflect organisational culture's characteristics. These dimensions are dominant characteristics, organisational leadership, management of employees, organisational glue, strategic emphases, and criteria for success. For the four questions, 10 points are divided to give weight for every response.

This OCAI instrument is based on Competing Values Framework CVF, a theoretical model that was developed by Quinn and Rohrbaugh in 1983. Four different quadrants are addressed through this instrument namely, clan culture (focused on person and flexible), adhocracy culture (focused on organisation and flexible), market culture (focused on organisation and stable) and the last one, hierarchy culture (driven by people concern and stable). The purpose of using this instrument is to find the organisational cultural profile of an organisation.

Some modifications were made on the OCAI to be suitable for the Saudi culture and to be simple and direct. The original OCAI has a total of 100 points for all dimensions. The respondent needs to divide the scores of the four alternatives (A, B, C and D) based on their choice and the total must be 100. Since this can confuse the respondents where they need to do more mental calculations to reach the desired score, the researcher decided to replace this total by 10 instead of 100. Secondly most of the instruments have current and preferred columns reflecting the existing situation and what the respondent prefers for the future. In order to complete the questionnaire, the respondents need to repeat the process for all the 24 questions found in the six dimensions; this in turn can take more time especially since the survey is lengthy and needs more concentration filling the four parts. Therefore it was decided to exclude the preferred part and move it to the qualitative stage.

In the fourth and final part of the survey, the dispute questionnaire is formed to give information about disputes taking place in the owner originations as perceived by the participated engineers who were asked to rank the frequency of these using a 5-point Likert scale that has a range from 1 (not at all) to 5 (very frequent). The dispute part is designed to identify the most frequent disputes in the OPC and to find the potential correlations with leadership and organisational culture.

Visits were conducted to the owner project departments (the OPC) to meet directors who facilitated distributing and answering of the questionnaire. It has been intended to cover all project departments to give a wider picture of leadership and culture as part of public construction. All the surveys were distributed to these organisations and project engineers were asked to complete them. Since, these departments were not used to such surveys; it was an added effort to work with them in describing the aim and nature of such a questionnaire in research. The researcher had continuous communications with the respondents and their managers to acquire a higher response rate.

It was designed to be direct and specific and not too general so the respondents can give true answerers. Specific questions can deliver clear answers and this enables the researcher to draw relevant conclusions. It was a common complaint from respondents that the survey is very long and consumes much time. In addition, the survey is not far from the respondent's environment and the daily working experience.

6.5.2. Qualitative method- best practice

In the previous section, the survey was discussed as a quantitative technique of data collection. In this section the qualitative technique is introduced namely, semi-structured interviews. Conducting interviews is a very common data collection method to obtain valuable information in the field of study from a group of respondents. Though many definitions of interviewing are found, an interesting definition was mentioned by (Kvale's, 1996), "*An interview is literally an interview, an inter change of views between two persons conversing about a theme of mutual interest*". Collis and Hussey (2003) emphasized on this method as rich and subjective method. In addition, it provides more strength, higher accuracy and more understanding of the research issues (Ahmad and Ali, 2003).

Many types of this method used in the academic research and they were categorized based on the way of interaction for instance, face to face, by phone, by email or by chat messaging (Arsham, 2002). Other researchers classify interviews based on structure into three types: structured, semi-structured, and unstructured interviews (Society for

Applied Anthropology, 1954). In structured interviews, questions are asked as previously prepared (Kumar, 2005) and this type is useful in testing specific hypothesis. In contrast, unstructured and semi-structured interviews use open-ended questions and aiming to have more real reflection to what people view or experience. The difference between unstructured and semi-structured interviews is that in semi-structured interviews, the researcher works with a fixed number of themes to discuss while no specific themes are predominant for unstructured interviews which require professional interviewers to manage.

In this research, semi-structured, face to face interviews are used. It is believed that this type can serve the research for such exploratory research that is based on constructing concepts. A key feature of semi-structured interviews is that questions can be added and changed and prompting questions can be asked depending on the evolving themes. Also this type is controllable and can be easily managed to obtain the required information from interviewees in specific timeframe. Prior to conducting the interviews, this stage was piloted by interviewing five participants. As Van Teijlingen and Hundley (2001) reported, pilot study enables a researcher to find difficult questions and to assess the interpretation of the answered questions. The participants were asked to provide comments about the clarity of instructions and the addressed questions. That is to check that their replies reflect the interviews' objectives. The participants reported no difficulty in understanding the interview questions but suggested some comments on reformulating a couple of questions to be better understood. Bearing in mind the objective of the interviews which is 'exploring the best practice in the OPC of leadership and organisational culture by identifying the key characteristics of the two constructs that can enable leaders and organisations to minimize disputes', the researcher intends to design the interviews to have a focus on the following points:

- *The participants views about seriousness of disputes in the current practices.*
- *The leadership qualities and skills needed in leaders to minimize disputes.*
- *The values and behaviours required in organisational culture to have minimum levels of disputes.*
- *The main strategies and processes in organisational level needed to reduce disputes.*

Therefore seven questions are formulated with the light of the piloting comments to employ the mentioned four points. The interview's questions incorporated in this study are presented in Appendix B. This qualitative stage meets objective III where the best practice is explored for the purpose to identify the key characteristics of leadership and organisational culture that serve in minimizing disputes in the OPC.

The selection criteria of the interviewees

For the purpose of research effectiveness, the decision to select the right persons to answer the research questions is complicated. Referring to the research objectives, there is a need for leaders and experts in the field of public construction that have dealt with disputes between the owner and contractor. It is decided to involve participants from different organisations that have different tasks. Thus the process includes key persons from owner organisation, consultant organisations and arbitration organisations. This diversity of participating leaders and experts allows for better understanding the practice and the link to the study's themes. By a quick survey performed by the researcher, 17 leaders and experts from the top management of organisations working in this field were invited. Out of 17 invitations, 11 agreed for conducting face-face interviews while 6 of them refused due to several reasons. Four owner organisation leaders, four experts and three arbitrators were interviewed. The selection criteria of the participants were as follows:

1. *At least having experience of 20 years working in/with the Saudi public construction.*
2. *Has dealt with owner-contractor disputes.*
3. *Has a top management position in the organisation.*
4. *The organisation must be an owner organisation or an organisation that interacts directly with owner organisations in the public construction context.*

The selection process started with collecting information about the organisations and the participants. Meetings were conducted to gather information with the key people working in the targeted organisations like leaders at the owner organisations, arbitrators

and other experts. Contractors were excluded from this process because of three reasons, 1) they have different attitudes toward disputes taken place with owners, 2) they have different goals and attitudes toward the implemented projects 3) they have conflicted benefits as they possess 'high profit' mentality. This makes investigating contractor organisations needs a further deeper study. The key managers in the targeted organisations were well known by people working in the field, therefore it was not difficult to reach them. To have more information, the CV's of the top managers were investigated by the researcher to find the right participants that meet the selection criteria.

The interviewees

Various areas of research were combined together for the sake of reliable and comprehensive results. For this reason, it was decided to bring different views by interviewing different types of professionals in the practice of public construction. That is to gain more actual results as possible and to enhance the research outcomes. The involved participants represent various organisations that work within the public construction context. Four owner leaders (from project departments), four experts (leadership and management consultants), three managers (arbitration organisations) were interviewed in the present study. Therefore, three types of organisations were included, owner project departments, management consultancy organisations and arbitration organisations. This variety in choosing the targeted organisations would expect to add more actual knowledge about the current and best practice which had an impact on the research outcomes. These organisations were continuously working with owner organisations; in most cases they had good relations with these organisations.

6.6. Data Analysis

All of the gathered data by the previously mentioned methods in the above sections were subjected to quantitative and qualitative data analysis, see Figure 6.4. Data analysis is defined as "*the process of bringing order, structure, and meaning to the mass of collected data*" (Marshall and Rossman, 1995). The analysis process is

considered as a significant stage in interpreting data to link the parts of the study based on the prescribed aim and objectives. This stage needs specific critical skills and analytical knowledge to be adhered to the researcher. Analytically, data analysis comprises of a series of connected steps: examining, categorizing and combining evidences with the research objectives (Creswell, 2007; Yin, 2008). Significantly, this process is considered as interplay between the researcher and the collected data by employing appropriate analytical methods, in other words, the researcher needs to link data analysis with the study goals (Strauss and Corbin, 1998).

6.6.1. The survey analysis

As mentioned in section (6.5.1) the survey is designed to collect data regarding the current practice in the OPC. The data is analysed using the Statistical Package for Social Science (SPSS). This is achieved by performing descriptive and parametric statistics to analyse the collected data. Polit and Hungler (1999) described SPSS as a reliable and integrated tool in which descriptive and inferential statistics can be managed. This research utilized descriptive analysis and correlation analysis in order to answer the research questions described in chapter one. Descriptive analysis is used to transform the gathered data to a specific form to be easily understood and interpreted (Zikmund, 2000).

Most of researchers use for correlation analysis two tests either regression or by coefficients (Spearman's coefficient or Pearson's product-moment coefficient). Regression, either simple linear regression or multiple linear regression, determines the degree and direction of the correlation using a single dependent variable with a set of independent variables. In Pearson’s correlations, every factor is measured independently while regression analysis combines the influences of independent variables on the dependent variable. Pearson’s coefficient measures magnitude and direction of linear association between two variables where it has been recognized by an enormous number of studies to be a reliable and accurate measure. This study aimed to examine the correlations of leadership and organisational culture independently with disputes. Therefore Pearson’s coefficient was chosen to meet the research’s objectives.

Demographic analysis

Demographic data is subjected to descriptive analysis, namely, age, job position, experience and education. The main objective of descriptive analysis is to reveal the characteristics of the participants of the OPC. This information is considered as a sort of importance in every study to be analysed critically with comparison with other studies. The motive behind studying the participants' characteristics is:

1. To have an adequate description about the background of the respondents.
2. To explore the main differences between their characteristics.

Analysis of the Organisational Culture Assessment Instrument OCAI

The OCAI is employed in this study to assess organisational culture. As mentioned in chapter four, the OCAI is an instrument to assess organisational culture based on the Competing Value Framework CVF, (Cameron and Quinn, 12011). It is substantial in determining the cultural profile of an organisation and can provide a clear vision of the dominant culture; every organisation has its own mix of organisational culture and this mix can be identified through completion of a short questionnaire (OCAI Online 2010).

The CVF moves focus from individuals to organisations as an entity. This approach divided cultures into four types: clan culture, adhocracy culture, hierarchy culture and market culture. These cultural types are described by two 'orthogonal' dimensions, as shown in Figure 6.6. Both dimensions clarify the complex nature of organisational culture by differentiating opposite sets of values, orientations and assumptions forming the basics of the CVF (Cameron and Quinn, 2011). The first dimension differentiates between stability, discipline and control from the criteria of flexibility, dynamism and openness. Conversely, the second dimension differentiates between internal orientation, unification and integrative attitudes in one hand than external orientation, diversity and differentiation on the other hand. While most organisations have interfered items from every cultural type, every organisation has its own unique culture with specific characteristics which are different from other organisations. This makes the researcher

realized that the four types of OCAI instrument are theoretical archetypes and applying them in practice needs more attention.

The OCAI instrument was subjected to descriptive and correlation statistics. It was intended to identify the profile of organisational culture in the OPC. By utilizing descriptive statistics, mean and standard deviation values were determined from the participant's answers. By computing the mean scores, the dominant organisational culture type was determined. Correlations of organisational culture with leadership style and disputes were examined using Pearson's coefficient. Among these correlations, there are correlations with disputes and with leadership style subscales. Correlation analysis was required to find what kind of influence exists in the current practice.

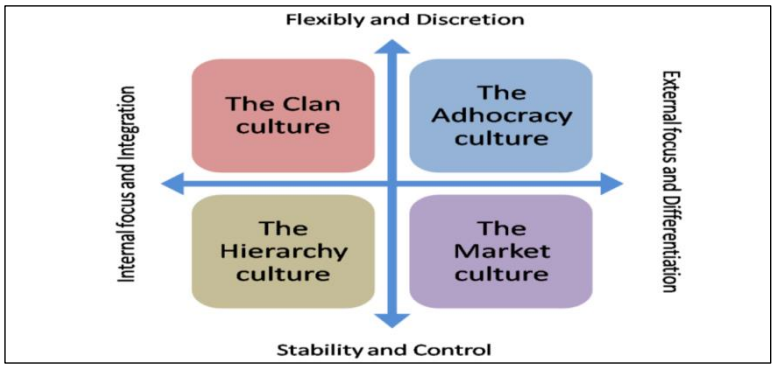
As shown in Appendix A, the OCAI consists of six dimensions; each dimension has four alternatives (A, B, C and D) depending on how the participant can describe the organisation. Six dimensions form 24 questions of the OCAI: dominant characteristics, organisational leadership, and management of employees, organisation glue, strategic emphases and criteria of success. There is no right or wrong answer. Scoring the OCAI was calculated using arithmetic calculations. The respondent may choose the higher number to the alternative that is similar to his organisation and a lower number that is dissimilar. The total must equal to 10. Every respondent is required to rate the set of questions from 1 to 24 for what he feels about the existing culture in the organisation. The instrument's calculations are performed by adding together all of the responses for clan (A) and then divided by 6 to compute an average score for the whole column. Next, the same calculations are computed for adhocracy B, market C and hierarchy D. By conducting these calculations, the scores of A, B, C and D are determined and thus finding the dominant organisational culture. Dominant culture is determined by the higher score in the OCAI.

The CVF assumes that every organisation has different units and subunits organized in different levels to form organisational culture and therefore cannot be described by one single cultural type (Cameron and Quinn, 2011). Several studies used OCAI to profile organisational cultures have revealed that organisations hold characteristics of more

than one type. Organisations develop culture with time as members react to external circumstances and challenges and these cultures dominate their practices and behaviours.

Analysis of the Multifactor Leadership Questionnaire MLQ

The MLQ, developed by Bass and Avolio's (1995), is used in this study to measure leadership scales (transformational; transactional and laissez-faire). The full range leadership theory (Avolio, Bass, 2004) is the theoretical framework for the MLQ. It describes the different leadership influencing styles ranging from 'non-leadership' to



CLAN	ADHOCRACY
Mentoring Extended family, nurturing Participation Teamwork Employee involvement Corporate commitment to employees Rewards based on teams not individuals Loyalty Informality Job rotation Consensus	Dynamic Entrepreneurial Risk-taking Rapid change Innovation Creativity Temporary structure Power is not centralised, it flows from individual to individual or team to team Sometimes exist in large organisations that have dominant culture of a different type
HIERARCHY	**MARKET**
Structure Control Coordination Efficiency Stability Procedures govern what people do Formal rules and policies	Results-oriented Gets job done Competition and achievement Focus on transaction with external suppliers, customers, contractors Productivity Tough and demanding leaders Emphasis on winning Success is defined in terms of market share and penetration

Figure 6.6: Organisational culture's types as measured by the OCAI based on the CVF.

influential transformational leadership. It has been proven that the MLQ has effectively assessed leadership scales by conceptually organising along the twelve leadership subscales to reflect behaviours and attributes of leaders, for more details see Appendix A.

Both descriptive and correlation statistics are applied on the MLQ results. The dominant leadership style was determined by finding the of the main leadership subscales, as shown in Table 6.1. The MLQ has 12 subscales: 9 subscales reflect the three main scales (Transformational, Transactional and Laissez-faire) and 3 subscales represent leadership outcomes. The main scales include the following subscales:

1.Transformational leadership (5 subscales): Idealized influence attributed and behaviour, Inspirational motivation, Individual consideration, and Intellectual stimulation.

2.Transactional leadership (3 subscales): Contingent reward, Management-by exception-active, and Management-by-exception-passive.

3.Laissez-faire (one subscale).

Table 6.1: Subscales of leadership styles.

	Leadership scale	**Subscale**	**Scale Abbrev**	**Questions**
1	Transformational	Idealized Attributes or Idealized Influence (Attributes)	IA	10,18,21,25
2	Transformational	Idealized Behaviours or Idealized Influence (Behaviours)	IB	6,14,23,34
3	Transformational	Inspirational Motivation	IM	9,13,26,36
4	Transformational	Intellectual Stimulation)	IS	2,8,30,32
5	Transformational	Individual Consideration	IC	15,19,29,31
6	Transactional	Contingent Reward	ICR	1,11,16,35
7	Transactional	Mgmt by Exception (Active)	IMA	4,22,24,27
8	Transactional	Mgmt by Exception (Passive)	IMB	3,12,17,20
9	Laissez-Faire	Passive Avoidant	LF	5,7,28,33
10	Outcomes of Leadership	Extra Effort	EE	39,42,44
11	Outcomes of Leadership	Effectiveness	EF	37,40,43,45
12	Outcomes of Leadership	Satisfaction	SA	38,41

In addition, Pearson's coefficient is used to find the correlation between leadership style subscales and disputes. Moreover, the relationships between the types of organisational culture and leadership subscales are examined. That is to ascertain whether there is any kind of relationships between these variables.

The MLQ- 5X consists of 45 questions reflecting 12 subscales. A key feature found in the MLQ is the 360 degree's feature; see section (3.8), which makes it capable to measure all kinds of leadership. This feature is broadly applicable to various cultures and contexts and so in investigating the current practice of the Saudi public construction which needs certain instrument that is broadly applicable to such culture.

The MLQ can determine the presence or the absence of transformational leadership and consequently the basic subscales can be exhibited. Most researchers use this instrument to identify leadership qualities. However, more attention should be focused on bias that may accompany identifying leadership qualities, specifically transformational qualities, in the MLQ analysis (Bass and Avolio, 1989b). There are two sources of this bias. The first source found by researchers is the difficulty found with respondents in differentiating between leader's qualities. This can be revealed from the inter-correlations of transformational leadership subscales. A number of researchers pointed out to the significant correlations among these subscales particularly (Bycio *et al.,* 1995; Tepper and Percy, 1994). It can be said that despite a theoretical distinction among the leadership subscales is existed, the distinction might not be hold in practice. Another source of bias is related to social desirability (Bycio *et al.,* 1995; Yukl and Van Fleet, 1991). The respondents may not reflect the actual leader's behaviours and attributes due to social cultural factors. This can be found in transformational leadership scale more than transactional and laissez-fair scales (Bass and Avolio, 1989b). Social desirability bias can influence the leader's rating by subordinates which may affect the determination of leadership qualities. On the whole, researchers have to pay more attention to these sources of bias in the MLQ to have accurate leadership profiles.

Analysis of the dispute part

The dispute questionnaire is based on data collected from literature. A number of 25 dispute causes are contained in this part. The respondents are asked to rank the dispute

cause based on the frequency of occurrence in their organisations. Based on this ranking, mean values of the answers were calculated to identify the most frequent causes of disputes in the PCOs. Therefore mean values for all respondents are calculated for every dispute cause.

After receiving the completed surveys, both descriptive and correlation statistics are performed. It is firstly intended to identify the most 10 frequent cases of disputes in public construction. To accomplish this objective, the means and standard deviation for the 25 caused were determined based on the survey's answers. By identifying the most frequent disputes, objective I of this study is achieved. Correlations were examined between disputes and the identified types leadership style and organisational culture. This meets objectives II and III. Also inter-correlations among the 25 dispute causes were tested to find potential associations.

6.6.2. The interviews analysis

Approaches to analyse qualitative data are numerous representing a diversity regarding associated theoretical perspectives. A number of methods are used to analyse interviews include, grounded theory, hermeneutic and thematic analysis. Grounded theory is defined as a set of inductive and repeated processes with a purpose of finding concepts in one text and then connecting these concepts to a theory (Corbin and Strauss, 2008; Glaser and Strauss, 1967). A key feature of grounded theory is that the resulting theoretical models are grounded in the analysed data. On the other hand, Ferraris (1996) defines hermeneutics as "*the art of interpretation as transformation*" and contrasts it with a view of theory as "*contemplation of eternal essences unalterable by their observer*". Hermeneutic gives the emphasis on interpretation and understanding rather than explanation and verification. The third method is 'thematic analysis.' Whilst this method is widely used, no clear view can be found in literature regarding its definition and its process (Braunand Clarke, 2006). Broadly, thematic analysis considers searching through a given data to identify recurring themes.

Both thematic and hermeneutic analyses share the emphasis on interpreting the collected data and they are appropriate for developing theories (Bryan 2008; Myers

1997; Hayes 2000). Also, thematic and hermeneutic analysis are considered to be more compatible with most of research than grounded theory since theoretical sampling take place during data collection (Glaser and Strauss 1967). Hermeneutic analysis is suitable for researches that seek to study the whole organisation taken into consideration the whole background of the research (Myers, 2004). That implies hermeneutic analysis is not a proper method to investigate the views and perceptions of participants toward specific issues. Thematic analysis on the other hand, focuses on the individual's views and experiences in the social context. In other words, thematic analysis can "*reflect reality and to unpick or unravel the surface of reality*" (Braun and Clarke, 2006). From the above viewpoints, thematic analysis was used in the research. In the following sections more details of this method are described.

Interview analysis method: thematic analysis

In analysing the semi-structured interviews, thematic analysis was used. Out of several qualitative approaches found in research, thematic analysis approach is used widely in qualitative research due its suitability and reliability. "*Thematic analysis can be an essentialist or realist method, which reports experiences, meanings and the reality of participants, or it can be a constructionist method, which examines the ways in which events, realities, meanings, experiences and so on are the effects of a range of discourses operating within society*" (Braun and Clarke, 2006). It is very helpful technique in finding connections, concepts and themes between interviewees (Bryman, 2008; King, 2004), in matching frequent and similar themes issues (Hayes, 2000; Holliday, 2002; Ritchie *et al.,* 2003; Smith, *et al.,* 1995), in interpretation in details what data has, (Boyatzis, 1998). Miles and Huberman (1994) thought of thematic analysis as a reduction method in which a reduction process is applied to the collected data, then data is displayed and finally conclusions are drawn out of the whole process, Figure 6.7.

An Inductive thematic analysis is utilized by this study where themes can be identified through the analysis. The recorded interview data was transcribed into text, and then translated from Arabic to English by using back translation technique as was described

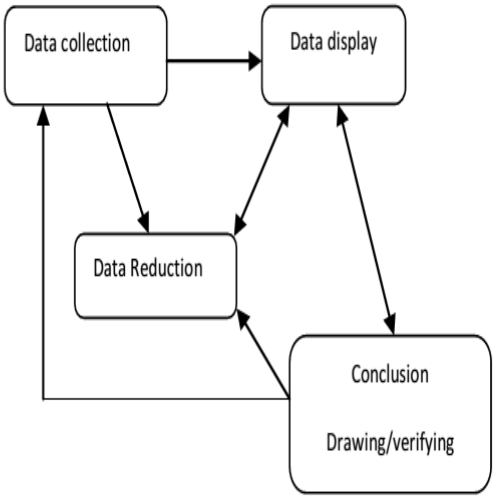


Figure 6.7: Thematic analysis components, (Miles and Huberman, 1994).

in section (6.5.1). Seven areas of analyses were pre-defined as shown in Figure 6.8. As a part of the familiarization process, the manuscript had been read several times; the recurring themes were identified by a theme-chart. A reduction process was conducted to find the roots of the defined themes; that could help the researcher to have more focus on the data themes (Ritchie *et al.,* 2003). Similar topics are listed into categories after which comparisons are made in these categories to find positive and negative relationships. This process is vital since themes are emerged then.

In a later stage of thematic analysis, a step was taken to code the data finding the common themes determined from this analysis. Comparisons between similarities and differences were undertaken to present specific classification to the processed data. Therefore, "*coding, categorization and noting patterns, i.e. different level of themes could be provided*" (Braun and Clarke, 2006). Also the relationships between variables were tested in order to enhance the efficiency of the conducted thematic analysis (Miles and Huberman, 1994; Creswell, 2009; Hayes, 1997).

The analysis process

The interviews are conducted using a digital recording device for the purpose of storing the recorded information. The recorded materials are then transcribed to a written manuscript in the Arabic language. A translation to the manuscript is made by two separate translators to make sure of the exact information. After formatting the obtained full text of the eleventh interviews, it is read many times to enhance the familiarization process. To make the interviewees expressing their knowledge of the research topics in more efficient way, open ended questions are used. The researcher is required to visit the selected interviewees in their places.

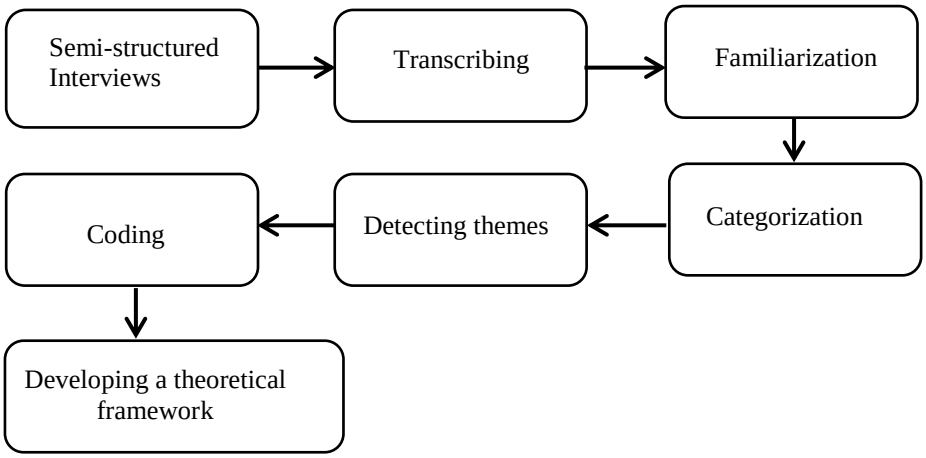


Figure 6.8: Steps of analysing the qualitative data.

The familiarization process is an important step in thematic analysis and should continue until understanding the characteristics of data obtained from the participants. After recording the interviews, the recurring ideas and theme were identified. The clarifications and accurateness of research questions and objectives would help in finding the main themes and ideas that needed in interviews, Anderson (2004). Broadly, themes can be drawn from different ways; from literature of the research topics, from the researcher's experience, discussions with other researchers, research meetings and conferences, or from a mixed experience of all what mentioned (Rugg and Petre 2007; Saunders *et al.* 2003). As Ritchie *et al.* (2003) reported about the importance of this

stage of analysis, it is worthwhile to look through a theme analysis across all of the data with an eye on views, experiences or behaviours which were labelled or flagged to identified more wider categories. These themes can be attitudes, behaviours, motivations or views. After identifying the recurring themes, a conceptual framework was developed to link themes with the issues that had been introduced throughout the interviews. Themes then grouped in a smaller number of categories, i.e. main themes, to be employed in the overall framework.

6.7. Validity and reliability

Due to the association nature of research with occurrence of errors and biases, researchers have to minimize errors to ensure the quality of the implemented research. To achieve that, tests for validity and reliability have to be undertaken. The obtained data was tested for normality using Kolmogorov-Smirnov test indicated that the distribution is normal since ($p>0.05$) (Pallant, 2001). Validity stands to how well the instruments can measure what is designed to measure (Litwin, 1995) while Hair *et al*. (2006) defined it as "*the extent to which a scale or a set of measures accurately represents the concept that it is intended to measure."* Various types of validity were used in recent research: predictive validity, concurrent validity, face validity, content validity and construct validity (Walizer and Wienir, 1978).

Face, content and construct validity measures were widely used in research. Face validity refers to establishing a domain to generalize the findings of the research. In face validity experts examine the instrument to make sure that the questions were assessing what they were designed for (Yin, 1994). Internal (content) validity examines the accuracy of the obtained information by the instrument and checking if this information meets reality (Cresswell, 1994). Construct validity is defined as establishing the right operation process to measure the researched concepts (Yin, 1994). In the present study, face validity and internal validity are used in the pilot study. This was resulted in valuable information about testing the survey and changing and restyling some of the

questions. The feedback was also beneficial for the researcher related to the other parts of the research.

As mentioned in section (6.5.1), before starting the distribution process, the survey has been discussed to 12 project managers in the field of the study. This pilot study was of high importance to enhance familiarization and to detect any issue early with the involved instruments. Therefore it was intended to test the instruments for manageability, validity and reliability early to make the required changes. Face and content validity was implemented to the dispute part. Positive feedback was received about comprehensively of the 25 questions to cover the frequent causes of disputes in the scope of the study. In addition, small modification was made in reformulating some of the questions. Also, other comments were taken into consideration like the length of the survey.

Reliability means "*a measure should consistently reflect the construct that it is measuring*" (Field, 2009). Reliability is aimed to reduce errors and biases (Yin, 1994) and making sure about the credibility of the research findings (Collis and Hussey, 2003). Among the most widely used measures of reliability is Cronbach's alpha coefficient (Bryman, 2008; Pallant, 2007). The acceptable values of Cronbach's alpha range between 0.70 and 0.80 (Nunnally, 1978). This study uses this measure to assess reliability of the research. The test of reliability was implemented by using the Statistical Package for the Social Sciences (SPSS) version 20.

The reliability of the dispute questionnaire, using alpha Cronbach's coefficient, was 0.766 which provides more confidence to the instrument, "*Cronbach alpha coefficients greater than .70 are generally regarded as very good*" (Posner, 2010). To enhance the reliability of the survey, standardization was employed in which the researcher intended to ask every participant specifically the same question in the same way (Sapsford, 1999).

Also, a test of the reliability instrument of leadership style MLQ was 0.836. In contrast, the reliability of the MLQ has been tested by Bass (1995, 1998); alpha Cronbach's coefficient was 0.82 which shows acceptable results in the current study. Reliabilities of leadership style scales, commonly, fall in the range from 0.74 to 0.94 (Morrison *et al.*,

1997) and Avolio and Bass (1995) reported that reliability of this instrument exceeds accepted levels. Thus, the internal reliability of leadership style instrument has proven good consistency.

Nevertheless, large number of studies has been conducted using MLQ covering various types of organisations which have shown acceptable and stable reliability results. Carless (1998) investigated MLQ 5X the Australian retail bank branch managers (N = 695) and revealed reliability of the MLQ of a Cronbach alpha of > 0.90 which shows significant consistency (in the range 0.74-0.94).

On the other hand, several searchers have used the OCAI and provided evidences of high reliability of the OCAI. For instance, Zammuto and Krakower (1991) studied higher education organisations, and for 1300 respondents, the reliability was found to be for clan culture was 0.82, adhocracy culture 0.83, market culture 0.78 and hierarchy culture 0.67. In addition Kwan and Walker (2004) stated the (Goodness of Fit index) was .95 which exceeds the recommended minimum of .90. Another large study was conducted by Yeung *et al.* (1990) in which 10,300 leaders were investigated. Cronbach alpha coefficient for clan culture was 0.79, adhocracy culture 0.8, market culture 0.77 and hierarchy culture 0.76. In addition, Igo and Skitmore, (2006) supported the reliability and validity of CVF in Australia. The reliability and validity of OCAI and CVF are supported strongly in literature. In the this study, OCAI results of reliability display Cronbach's Alpha scores for clan culture 0.734, adhocracy culture 0.810, market culture 0.708 and hierarchy culture 0.681. These results assess the level of confidence in the OCAI instrument.

6.8. Development of the framework

By analysing quantitative and qualitative data as described in section (6.6), the influences of leadership and organisational culture on disputes in public construction can be drawn. Objective IV of this study is to develop a reliable framework to assess leaders and organisations to minimize disputes in public construction. The findings obtained by the survey and semi-structured interviews are combined to construct the

basic foundation of the proposed framework. The development of the framework utilized inductive reasoning approach (Upham, 1841). A variety of framework methodologies are used in research; most of them use the 'bottom-to-top approach' which commonly start by investigating specific observations or incidents up to formulation of generalization. As Johnson (1993) suggests developing a framework requires three phases namely: analysing the problem, designing abstractions to explain the suggested solution to the problem and testing the framework. Before developing a framework, it should be known that "*it is designed to be refined, good frameworks are usually the result of many design iterations and a lot of work involving sometimes structural changes*" (Opdyke and Johnson, 1990). Therefore, All of the above information were combined together to develop a reliable framework to minimize disputes in the OPC.

6.9. Framework validation

To validate the developed framework, a survey was designed containing a presentation of the framework and its four parts followed by a number of questions as shown in Appendix C. This survey is aimed to examine practicality and effectiveness of the framework. The validation process examines the four parts of the framework: leadership, organisational culture, organisational strategies and processes and dispute avoidance techniques. Also, the process includes examining the entire framework. Twelve academics and practitioners participated in this stage giving valuable feedback for refining the framework.

6.10. Ethical consideration

This study adhered to ethical guidelines mentioned in the student code of practice at Heriot-Watt University. Measures were taken into consideration by the researcher to meet the approved guidelines, specifically, confidentiality of the participant's information throughout the study. It was acknowledged that participants have their right

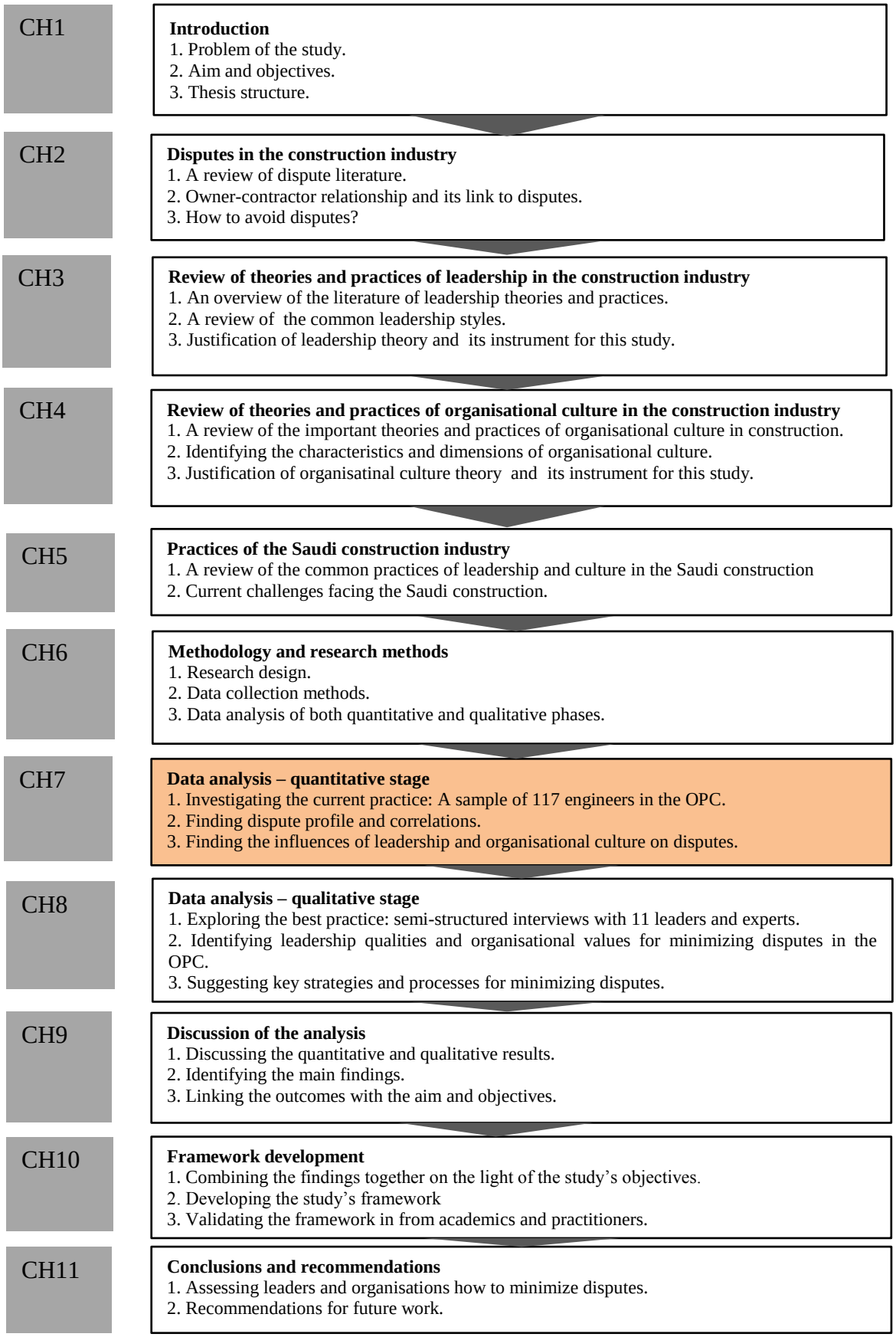
to privacy and confidentiality and their agreement in what they participate in (Polit and Hungler, 1999; Fain, 1999).

Moreover the obtained information of the OPC was considered under privacy for all purposes. The organisations top managers were informed to be provided with a copy of the results of this study and that was agreed prior their allowance to distribute the survey among the organisation's members. Though, no consent forms were required for the surveys, the participants were informed of confidentiality before answering the sheets. In addition the interviewees were acknowledged with the confidentiality about their details and the recording materials before conduction the interviews.

6.11. Summary

This chapter presented the applied research methodology based on the aim and objectives of the research. The research paradigm of the current study was described mentioning the rationale behind this adoption. A mixed method was employed combining quantitative and qualitative data methods. The research comprises two stages of data collection methods, namely, survey and semi-structured interview methods. The current practice of the public construction was explored through surveying engineers working in the OPC. Interviews were conducted with leaders and experts working in public construction to assess the best practice of leadership and organisational culture. The analysis of the quantitative data was presented through utilizing SPSS tools. Also, thematic analysis was presented as a data analysis method for qualitative phase. Finally, Validity and reliability tests were mentioned to enhance the quality of this research. The next two chapters present data analysis of both quantitative stage and qualitative stage, respectively.

7 Chapter seven - Data analysis: quantitative stage



7.1. Introduction

By surveying the literature of construction industry, few studies have explored the relationships among the causes of disputes in public construction while disputes become very common in nearly every project. Due to this lack of knowledge, this study is aimed to fill the gap in literature related to construction disputes. By designing an in-depth questionnaire (survey), the study meets objectives I and II. This survey focuses on the current practice of the Owner Organisations of Public Construction OPC. Leadership and organisational culture are also investigated to find their influences on disputes.

This chapter is concerned with the quantitative stage mentioned in sections (6.5.1) and (6.6.1) through studying the current practices of the OPC. This chapter presents the analysis of this survey including information about the participating engineers working in the OPC. Descriptive and correlation analysis are performed based on the collected data. The analysis is divided into four parts: 1) Demographic information, 2) OCAI analysis, 3) MLQ analysis and 4) dispute analysis, see Appendix A. With the development of analysis, answers to the research questions are provided. The discussion in chapter nine will later combine together the results in this chapter (quantitative) with the results in the next chapter (qualitative) to develop the study's framework. The separation between data analysis and discussion is intended to organize the analysis of the obtained data in current and best practice in two different parts, then the thesis moves towards combining the findings together.

7.2. Sample description

As mentioned in section (6.5.1), the sample size is determined to reflect the wider population. The units of measure are the engineers working in the owner organisations

and they are asked about the practices of disputes, leadership style and organisational culture taken place in their organisations.

The participants are asked to answer a complete hard-copy of the survey. The survey consists of four parts: general (demographic) part, organisational culture's part, leadership style's part and dispute's part to form 98 items in 8 pages. The survey are personally distributed and received depending on personal contacts to save time. Out of 350 questionnaires distributed, 126 were received to have 36% response rate. Nine of these responded surveys are eliminated due to bias and data missing to have 117 valid responses from the covered owner organisations.

7.3. The current practice of the public construction: Descriptive analysis

Descriptive analysis shows the main feature of the sample. These participated personals share many characteristics and perceptions that reflect experiences and practices of their organisations. The study attempted to understand the profile of the public construction through this particular sample. Appendix A shows the complete survey used in this study.

7.3.1. Demographic Information

The demographic part includes questions describing general information of the participants. This section was designed intentionally to give information about Age, Job Position, Experience and Education.

Age:

Most of the owner organisation's members are young people. The results show that 35.9% of the respondents were in the category of (30-39) years while 11.1% for those (50-59) years of age as shown in Table 7.1. This result was taken into consideration when analysing the data since the decisions and opinions of the respondents can be

influenced by age factor. This is related to the country's feature of 'youth bulge' which reveals more rates of young people found more than the numbers in other countries, for example, the percentage of the Saudi young people under 29 is 66% of the population comparing to 41% in the United Sates (Murphy, 2012).

Job position:

In the OPC, the management structure of engineering departments consists of three levels: Assistant Engineer, Supervisor Engineer and Project Manager. The engineers usually report to the department's manager/director. Moreover, those engineers are the professionals who deal with disputes and represent their organisations when interacting with contractors and other involved parties. Therefore, their perceptions towards the study's factors have an obvious importance. As shown in Table 7.1.

Experience:

Regarding the experiences of respondents, most of the engineers have little experiences (0-9 years) with 45.3% while those with considerable experience (30-39) years are found to be only 4.3%. Owner organisations are considered to be young organisations due to the experiences and ages of members. This is taken into consideration when discussing these results. It is worthful mentioning that experienced professionals move to the private sector as they get better offers. This has an impact on the whole sector which results in lack of qualified and professional staff while younger and less experienced employees are recruited.

Education:

The minimum level of education among the participants is Diploma with 2.6 %, while a similar percent found for those who have Master Degree. Most of the respondents have Bachelor Degree, 93.2%, as shown in Table 7.1. This is a key characteristic of the participants due to its impact on their perceptions about the investigated variables. Their degrees are generally obtained from Saudi universities.

Table 7.1: Demographic statistics of the respondents, N=117.

Demographic variable	Frequency	Percentage
Age		
20-29	32	27.4
30-39	42	35.9
40-49	30	25.6
50-59	13	11.1
Job Position		
Assistant Engineer	69	59.0
Supervisor Engineer	37	31.6
Project Manager	11	9.4
Experience		
0-9	53	45.3
10-19	46	39.3
20-29	13	11.1
30-39	5	4.3
Education		
Diploma	3	2.6
Bachelor Degree	109	93.2
Master Degree	3	2.6
PhD Degree or Higher	2	1.7

7.3.2. Organisational culture profile

Descriptive statistics are used to study the sample's characteristics. Mean (M) and Standard Deviation (SD) are basic descriptive statistics that are used to investigate the profile of the sample. The Mean is calculated by dividing the sum of obtained values by the number of participants N while maximum value (Max) is the largest obtained value and minimum (Min) is the minimum obtained value. Standard Deviation is used to give an idea about how close the data to the average value. After presenting the participant's demographic information in the last section, the results of the

organisational culture profile, as obtained from the OCAI, will be analysed. This is to answer the research question (two): what is the dominant organisational culture in the OPC? It is revealed that Hierarchy culture are chosen by most of the respondents to be the dominant (M=3.69, SD= 1.21) as illustrated in Table7.2. Clan culture comes in the second (M=3.19 SD= 1.11,) tailed by market culture (M=1.85 SD= 0.48). Adhocracy culture is the lowest (M=1.27 SD= 0.86). As public (government) organisations, the owner organisations are prevailed by hierarchy culture. A sample of calculations is presented in Appendix E.

Table7.2: Descriptive statistics of organisational culture, OCAI.

Type	N	Min.	Max.	M	SD
OCD	117	0.50	6.17	3.69	1.21
OCA	117	1.17	7.50	3.19	1.11
OCC	117	0.50	6.00	1.85	0.48
OCB	117	0.50	2.50	1.27	0.86

(OCA: Clan culture, OCB: Adhocracy culture, OCC: Market culture,
OCD: Hierarchy culture)N: No. of respondents, M: Mean and SD: Standard deviation)

7.3.3. Leadership profile

By recalling research question three: what is the dominant leadership style in the OPC? The results of leadership style indicate that transactional style (M=2.22, SD=0.54) is dominated in the owner organisations as shown in Table 7.3. Whereas, transformational style is chosen in the second place (M=2.02, SD=0.50) and laissez-fair comes lastly with (M=0.80, SD=0.43).

Table 7.3: Descriptive statistics of leadership style, MLQ.

Style	N	Min.	Max.	M	SD
TRC	117	0.75	3.38	2.22	0.54
TRF	117	1.20	3.10	2.02	0.50
LSF	117	0.00	1.88	0.80	0.43

(TRC: Transactional leadership, TRF: Transformational leadership,
LF: Laissez-fair leadership, N: No. of respondents, M: Mean and
SD: Standard deviation)

7.3.4. Dispute profile

The respondents are asked to rank the frequency of occurrence of the identified 25 causes of disputes that may be taken place in their organisations. The aim is to answer research question one: what are the most frequent disputes in the OPC? The common dispute causes in public construction are gathered from literature of construction disputes. All of the surveyed engineers answered the dispute questions as they perceived them. A number of dispute causes were added by the respondents to the identified list. But they were not frequently mentioned by others and have similarities with the already defined ones and thus they were considered not important.

The results of the analysis of this part are illustrated in Table 7.4 and Table 7.5. The most frequent (10) disputes are listed in Table 7.6 based on their means as they ranked by the respondents. These dispute causes involve disputes related to delay by contractor and others related to leadership and management. Also, among this list, two disputes are related to tendering and another two are related to external circumstances.

Table 7.4: Common dispute causes in public construction.

Dispute		**Code**
1	Ambiguous contract documents	DS1
2	Inadequate design drawings	DS2
3	Lack of competence of project participants	DS3
4	Late payments	DS4
5	Incomplete tender information	DS5
6	Slow owner response	DS6
7	Lack of team spirit	DS7
8	Delay in obtaining approval forms	DS8
9	Unclear responsibilities by project parties	DS9
10	Changing quantities and specifications in B.O.Q.	DS10
11	Ambiguous quality standard	DS11
12	Inadequate contractor selection	DS12
13	Verbal commands	DS13

14	Poor communication	DS14
15	Inadequate Site supervision	DS15
16	Unforeseen site conditions	DS16
17	Inadequate financial planning for the project	DS17
18	Too many cultures in the project (multi-background)	DS18
19	Poor management	DS19
20	Inadequate manpower	DS20
21	Unrealistic expectations	DS21
22	Unrealistic tendering	DS22
23	Delay by contractor than contract duration	DS23
24	Slow contractor response	DS24
25	Traits and behaviours of the project participant personal	DS25

Table 7.5: The ranks of (the most frequent disputes) as perceived by the participants.

Rank	Dispute	N	M	SD
1	DS23	117	3.65	0.93
2	DS7	117	3.34	1.29
3	DS24	117	3.33	0.98
4	DS14	117	3.32	1.23
5	DS20	117	3.29	1.11
6	DS22	117	3.21	1.19
7	DS12	117	3.09	1.18
8	DS16	117	3.08	1.91
9	DS8	117	3.06	1.99
10	DS15	117	3.01	1.90
11	DS10	117	3.00	1.03
12	DS25	117	2.95	1.11
13	DS11	117	2.88	1.20
14	DS13	117	2.85	1.11
15	DS19	117	2.82	1.28
16	DS5	117	2.74	1.11
17	DS9	117	2.70	1.02
18	DS18	117	2.68	1.06

19	DS2	117	2.67	0.88
20	DS4	117	2.62	1.24
21	DS17	117	2.61	1.17
22	DS3	117	2.57	1.04
23	DS6	117	2.49	1.09
24	DS21	117	2.42	0.99
25	DS1	117	2.26	1.02

(N: no. of respondents, M: mean and SD: standard deviation)

Table 7.6: The most (10) frequent causes of disputes in the OPC.

Rank	The dispute cause
1	Delay by contractor than contract duration
2	Lack of team spirit
3	Slow contractor response
4	Poor communication
5	Inadequate manpower
6	Unrealistic tendering
7	Inadequate contractor selection
8	Unforeseen site conditions
9	Delay in obtaining approval forms
10	Inadequate Site supervision

7.4. Correlation analysis between disputes, leadership style and organisational culture

After conducting descriptive analysis in the last section, correlation analysis is implemented using Pearson's product-moment coefficient. As discussed in the methodology (Chapter 6), this analysis will examine the correlations by finding the strength and direction of the linear relationship between variables (Pallant, 2007). This analysis is devoted to answer research question four: what influences do leadership style and organisational culture have on disputes in the OPC?

In order to assess the research questions, correlations were examined by Pearson's product-moment correlation coefficient (r) .Pearson's coefficient is widely used to measure direction and strength of a relation between two variables. Value of (r) range between (-1 and +1), value of zero indicates that there is no relationship while the value of ±1 reflects a perfect linear relationship. Pearson's correlation coefficient is a trusted tool to examine the correlations between factors (Bennett, 1996 and Parr *et al.*, 2006). A cut-off point of 0.3 was determined for practical significance for correlations as Cohen (1988) reported. Therefore in the present study correlations of 0.3 or below are considered not significant while above 0.3 is considered as significant correlation. This rating was used in many studies to organize data and pay focus on the significant tendencies of the results.

7.4.1. Leadership correlations

The subscales of leadership used in this study, as adopted from the full range theory (Avoli and Bass 2004), are inter-correlated and the results reveal that transformational subscales have positive significant correlations with each other as well as contingent reword of the transactional leadership as indicated in Table 7.7 and
Table **7.8**. Conversely, negative correlations are shown between the transformational attributes and the contingent reward with (active management by exception, passive management by exception and laissez-fair). With respect to leadership outcomes (extra effort, effectiveness and satisfaction), they are positively correlated with the transformational attributes and contingent reword. In addition, they are negatively correlated to (active management by exception, passive management by exception and laissez-fair).

By knowing the transactional leadership is dominated in the OPC, contingent reward is the most prevailed behaviour in this style (Avolio and Bass, 1995). The positive correlations with transformational leadership show the similarity between transactional and transformational leadership in the OPC practices. Although the

transformational was not prevailed, some of its characteristics are found in these organisations. However active management by exception, passive management by exception and laissez-fair, which represent the weak side of leadership, are not exhibited in transformational leadership in these organisations. This indicates that the members of the OPC tend towards transformational attributes more than the weak attributes.

Table 7.7: Subscales of leadership styles.

Leadership style	Subscale	
Transformational	Idealized Attributes	IA
Transformational	Idealized Behaviours	IB
Transformational	Inspirational Motivation	IM
Transformational	Intellectual Stimulation	IS
Transformational	Individual Consideration	IC
Transactional	Contingent Reward	TCR
Transactional	Mgmt. by Exception (Active)	TMA
Passive Avoidant	Mgmt. by Exception (Passive)	TMB
Passive Avoidant	Laissez-Faire	LF
Outcomes of Leadership	Extra Effort	EE
Outcomes of Leadership	Effectiveness	EF
Outcomes of Leadership	Satisfaction	SAT

Table 7.8: Inter-correlations of leadership subscales.

		IA	IB	IM	IS	IC	TCR	TMA	TMB	LF	EE	EF	SAT
IA	Pearson Correlation	1	.717**	.663**	.458**	.670**	.615**	-.192*	-.331**	-.335**	.373**	.434**	.428**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.038	.000	.000	.000	.000	.000
IB	Pearson Correlation	.717**	1	.717**	.532**	.644**	.417**	-.096	-.194*	-.151	.175	.309**	.224*
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.305	.036	.105	.059	.001	.015
IM	Pearson Correlation	.663**	.717**	1	.555**	.634**	.528**	.114	-.079	-.171	.381**	.338**	.372**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.221	.396	.066	.000	.000	.000
IS	Pearson Correlation	.458**	.532**	.555**	1	.604**	.419**	.038	.007	-.002	.157	.157	.182*

	Sig. (2-tailed)	.000	.000	.000		.000	.000	.685	.938	.983	.092	.090	.050
IC	Pearson Correlation	.670**	.644**	.634**	.604**	1	.550**	-.078	-.132	-.006	.254**	.261**	.265**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.406	.155	.946	.006	.004	.004
TCR	Pearson Correlation	.615**	.417**	.528**	.419**	.550**	1	-.090	-.258**	-.241**	.484**	.565**	.534**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.333	.005	.009	.000	.000	.000
TMA	Pearson Correlation	-.192*	-.096	.114	.038	-.078	-.090	1	.780**	.345**	.154	.083	.092
	Sig. (2-tailed)	.038	.305	.221	.685	.406	.333		.000	.000	.098	.371	.322
TMB	Pearson Correlation	-.331**	-.194*	-.079	.007	-.132	-.258**	.780**	1	.544**	-.055	-.161	-.120
	Sig. (2-tailed)	.000	.036	.396	.938	.155	.005	.000		.000	.559	.084	.196
LF	Pearson Correlation	-.335**	-.151	-.171	-.002	-.006	-.241**	.345**	.544**	1	-.389**	-.426**	-.470**
	Sig. (2-tailed)	.000	.105	.066	.983	.946	.009	.000	.000		.000	.000	.000
EE	Pearson Correlation	.373**	.175	.381**	.157	.254**	.484**	.154	-.055	-.389**	1	.861**	.905**
	Sig. (2-tailed)	.000	.059	.000	.092	.006	.000	.098	.559	.000		.000	.000
EF	Pearson Correlation	.434**	.309**	.338**	.157	.261**	.565**	.083	-.161	-.426**	.861**	1	.882**
	Sig. (2-tailed)	.000	.001	.000	.090	.004	.000	.371	.084	.000	.000		.000
SAT	Pearson Correlation	.428**	.224*	.372**	.182*	.265**	.534**	.092	-.120	-.470**	.905**	.882**	1
	Sig. (2-tailed)	.000	.015	.000	.050	.004	.000	.322	.196	.000	.000	.000	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

(IA: Idealized Attributes, IB: Idealized behaviours, IM: Inspirational Motivation, IS: Intellectual Stimulation, IC: Individual Consideration, TCR: Contingent Reward, TMA: Mgmt. by Exception (Active), TMB: Mgmt. by Exception (Passive), LF: Laissez-Faire, EE: Extra Effort, EF: Effectiveness, SAT: Satisfaction).

7.4.2. Correlations between organisational culture and leadership style

The correlations between organisational culture and leadership style are tested to have adequate understanding about the factors and their influences towards disputes. OCAI dimensions are tested for correlation with leadership styles. As illustrated in Table 7.9, a significant positive correlation is found between clan type and transformational leadership. In contrast, a negative correlation is indicated between hierarchy (the dominant) type and transformational leadership. For transactional style and laissez-fair, no significant correlation is shown. The above results have high importance in the light of the study's objectives. This is linked to the purpose of the

study to suggest an effective leadership style and organisational culture to work together as an environment for minimizing disputes in the OPC. Therefore when a positive significant correlation is found between transformational leadership and clan culture, it would give more strength for the suggestion of both constructs for the OPS as a healthy environment. Besides, it gives evidence that both have similar features which can enable them to work together in difficult circumstances for organisations like project-based-organisations.

Table 7.9: Correlations between organisational culture and leadership styles.

		TRF	TRC	LF
OCA	Pearson Correlation	.466**	.294**	.016
	Sig. (2-tailed)	.000	.001	.860
OCB	Pearson Correlation	-.184*	.032	-.085
	Sig. (2-tailed)	.047	.735	.360
OCC	Pearson Correlation	.020	-.037	.001
	Sig. (2-tailed)	.835	.690	.989
OCD	Pearson Correlation	-.342**	-.212*	.021
	Sig. (2-tailed)	.000	.022	.820

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
(OCA: Clan culture, OCB: Adhocracy culture, OCC: Market culture and OCD: Hierarchy culture, TRC: Transactional leadership, TRF: Transformational leadership and LF: Laissez-fair leadership)

7.4.3. Correlations of dispute with leadership and organisational culture

Correlations between the demographic variables and disputes are shown in Table 7.10. The results indicate that no significant correlations are observed between dispute causes and the demographic variables: Age, Job position, Experience and Education. The influence of leadership style on disputes is also examined. Significant correlations are found between transformational leadership and a number of dispute causes. As indicated in Table 7.11, significant negative correlations are found with six dispute causes: lack of team spirit, unclear responsibilities by project parties, poor communication, poor management and unrealistic tendering. Moreover, transactional leadership has negative association with four dispute causes namely: late payment, lack of team spirit, poor communication and poor management. However the

associations of transformational leadership with disputes are more significant than the associations of transactional leadership which have the tendency for weakness. On the other hand, laissez-fair leadership show positive correlations with only poor communication while other associations are weak. These results show the apparent influence of transformational leadership on disputes reduction comparing to the other leadership styles. Table 7.4 shows a summary of these correlations.

The influence of organisational culture on disputes is also tested. As illustrated in Table 7.13, the influence of organisational culture is manifested with team spirit, communication, and delay by contractor. No significant correlation is detected in adhocracy and market cultures. In clan culture, negative significant correlations are indicated with the disputes: lack of team spirit, poor communication, and delay by contractor more than contract duration and slow contractor response. Conversely, positive significant correlations are found between hierarchy culture and the disputes: lack of team spirit, poor communication, and delay by contractor more than contract duration, slow contractor response, late payments and incomplete tender information. The other disputes show weak correlations with both clan and hierarchy cultures. Table 7.16 summarizes the correlations between organisational culture and disputes.

7.4.4. Dispute inter-correlations

The inter-correlation of disputes is examined using Pearson's coefficient. Table 7.14 illustrates the results of the inter-correlations of the (25) disputes revealing significant correlations. These results were also organised in Table 7.16 for more simplicity to show the correlations with every dispute. Important associations include the inter-correlations between poor communication and lack of competence of project participants, late payments, incomplete tender information, lack of team spirit, unclear responsibilities by project parties and ambiguous quality standard. In addition changing quantities and specifications in B.O.Q is inter-correlated to lack of

competence of project participants, late payments, slow owner response and delay in obtaining approval forms.

Inadequate financial planning for the project is also inter-correlated to late payments, incomplete tender information, slow owner response, delay in obtaining approval forms, unclear responsibilities by project parties and changing quantities and specifications in B.O.Q. In addition, poor management was associated with late payment, incomplete tender information, lack of team spirit, inadequate contractor selection and poor communication. With regard to delay and slow response by a contractor, it was shown that associations were indicated with incomplete tender information, slow owner response, delay in obtaining approval forms, inadequate contractor selection and poor communication.

The results of dispute inter-correlations reflect importance for the OPC. This is to know the nature of relationships between specific practices and disputes, for example contractor selection practice in the OPC is linked to contractor's activity meaning that the selection process has deficiencies resulting with weak contractors. Poor management is also related to many dispute causes like late payment, lack of team spirit and poor communication. This shows that leaders and mangers have to care more about financial issues of contractors which have in turn direct impacts on the implementation of projects. With respect to the relationships between leaders and employees, leaders have to improve their skills and qualities of inspiration and encouragement of teams and individuals; that is to bridging the gap between them and others. In addition, traits of the OPC's members affect delay and slow response of contractors which gives a sign of the influence of traits and behaviours of individuals on the project success. Similarly, lack of competences among the OPC's members has relationships with unclear responsibilities, changing quantities and poor communication. This indicates that the qualification and professionalism of the engineers of the OPC lead to bad implications on the project process which results in

disputes between the owner and contractor. Leaders and key employees have to study these inter-correlations deeply and improve the poor practices to better practices.

Table 7.10: Correlations of demographic variables with dispute causes, N=117.

		DS1	DS2	DS3	DS4	DS5	DS6	DS7	DS8	DS9	DS10	DS11	DS12	DS13	DS14	DS15	DS16	DS17	DS18	DS19	DS20	DS21	DS22	DS23	DS24	DS25
AGE	Pearson Correlation	-.080	.192*	-.142	-.021	-.007	-.105	-.022	.005	.115	-.052	-.126	-.167	-.122	-.142	-.120	-.059	-.013	.013	.009	-.094	.107	-.037	.090	.063	.087
	Sig. (2-tailed)	.392	.038	.125	.819	.942	.261	.813	.957	.217	.581	.174	.071	.188	.127	.198	.529	.885	.887	.923	.312	.251	.690	.336	.501	.352
JP	Pearson Correlation	.054	.280**	.095	.107	.000	-.157	.090	.027	.224*	.018	-.044	-.173	-.115	-.151	-.140	.007	.016	.141	-.047	-.078	.195*	.034	.200*	.104	.199*
	Sig. (2-tailed)	.563	.002	.307	.250	.996	.090	.332	.776	.015	.848	.639	.062	.219	.103	.131	.944	.860	.130	.613	.404	.035	.714	.031	.266	.031
EXP	Pearson Correlation	-.093	.218*	-.161	-.012	-.009	-.142	-.100	.068	.221*	.014	-.105	-.159	-.090	-.159	-.106	-.084	.042	.130	-.016	-.056	.115	.043	.092	.100	.047
	Sig. (2-tailed)	.320	.018	.083	.900	.927	.126	.283	.465	.017	.881	.262	.086	.335	.087	.256	.369	.655	.163	.863	.549	.217	.649	.325	.283	.618
EDU	Pearson Correlation	-.050	-.132	-.055	-.091	-.066	-.182*	-.104	-.056	-.020	.024	-.052	.034	.036	.098	-.028	-.064	-.053	-.041	.014	-.035	.033	.082	.145	.019	.055
	Sig. (2-tailed)	.595	.156	.558	.331	.476	.050	.265	.547	.833	.796	.576	.714	.698	.292	.760	.494	.573	.663	.881	.711	.722	.380	.120	.840	.557

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

(AGE: Age, JP: Job position, EXP: Experience, EDU: Education and DS1-25: Dispute causes)

Table 7.11: The influence of leadership on dispute causes.

		DS1	DS2	DS3	DS4	DS5	DS6	DS7	DS8	DS9	DS10	DS11	DS12	DS13	DS14	DS15	DS16	DS17	DS18	DS19	DS20	DS21	DS22	DS23	DS24	DS25
TRF	Pearson Correlation	-.285**	-.010	-.143	-.470**	-.293**	-.051	-.687**	-.143	-.322**	.084	-.129	.205*	-.259**	-.628**	.023	-.091	-.159	.051	-.578**	-.105	-.248**	-.322**	-.100	-.191*	-.075
	Sig. (2-tailed)	.002	.915	.123	.000	.001	.583	.000	.124	.000	.366	.167	.026	.005	.000	.804	.328	.086	.584	.000	.258	.007	.000	.281	.039	.420
TRC	Pearson Correlation	.002	-.135	-.093	-.404**	-.293**	.017	-.328**	-.085	-.230*	.187*	-.274**	.120	-.011	-.325**	.040	-.185*	-.049	-.197*	-.303**	.020	-.225*	-.221*	.124	-.096	-.085
	Sig. (2-tailed)	.985	.147	.318	.000	.001	.855	.000	.360	.012	.044	.003	.197	.910	.000	.668	.046	.598	.033	.001	.827	.015	.016	.183	.306	.362
LSF	Pearson Correlation	.232*	.041	.002	.041	-.097	-.058	.120	.013	.137	.056	.299**	-.082	.097	.372**	-.193*	.203*	.179	-.039	.152	.068	.290**	-.097	-.067	.150	-.054
	Sig. (2-tailed)	.012	.661	.981	.658	.298	.534	.197	.891	.139	.549	.001	.378	.299	.000	.037	.028	.054	.676	.103	.466	.002	.298	.472	.106	.565

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

(TRC: Transactional leadership, TRF: Transformational leadership and LF: Laissez-fair leadership and DS1-25: Dispute causes)

Table 7.12: The influence of organisational culture on disputes causes.

		DS1	DS2	DS3	DS4	DS5	DS6	DS7	DS8	DS9	DS10	DS11	DS12	DS13	DS14	DS15	DS16	DS17	DS18	DS19	DS20	DS21	DS22	DS23	DS24	DS25
OCA	Pearson Correlation	-.149	-.263**	-.117	-.077	-.025	-.028	-.343**	.134	.164	.000	.079	.060	.148	-.401**	.040	-.124	-.172	-.221*	-.051	-.140	.096	-.224*	-.309**	-.422**	.047
	Sig. (2-tailed)	.108	.004	.207	.408	.790	.761	.000	.149	.076	1.000	.399	.524	.112	.000	.670	.183	.063	.017	.583	.131	.304	.015	.000	.000	.614
OCB	Pearson Correlation	.054	-.087	-.085	-.086	.048	-.036	-.067	-.182*	-.080	.032	.019	-.078	-.102	.019	-.108	.058	-.136	-.022	.047	-.033	.013	.123	.060	.078	.021
	Sig. (2-tailed)	.565	.350	.360	.357	.611	.700	.471	.050	.393	.733	.837	.402	.275	.837	.247	.534	.144	.812	.616	.726	.887	.187	.523	.402	.824
OCC	Pearson Correlation	-.135	-.144	-.027	.071	.134	-.101	.036	-.028	-.063	-.145	.025	-.143	.071	-.072	-.078	.033	-.072	-.019	.058	.152	.041	-.140	-.097	-.104	-.094
	Sig. (2-tailed)	.146	.121	.769	.448	.150	.277	.698	.766	.501	.118	.788	.125	.445	.438	.405	.722	.438	.838	.534	.102	.663	.133	.300	.265	.312
OCD	Pearson Correlation	-.050	-.100	.057	.377**	.309**	.069	.490**	.024	.074	.093	.100	.089	-.141	.510**	.061	.056	.040	191*	-.011	.223*	.138	.254**	.335**	.641**	-.043
	Sig. (2-tailed)	.595	.285	.541	.000	.000	.457	.000	.798	.428	.319	.282	.342	.129	.000	.511	.546	.670	.039	.907	.016	.138	.006	.000	.000	.649

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

(OCA: Clan culture, OCB: Adhocracy culture, OCC: Market culture and OCD: Hierarchy culture and DS1-25: Dispute causes)

Table 7.13: Inter-correlations of dispute causes.

		DS1	DS2	DS3	DS4	DS5	DS6	DS7	DS8	DS9	DS10	DS11	DS12	DS13	DS14	DS15	DS16	DS17	DS18	DS19	DS20	DS21	DS22	DS23	DS24	DS25
DS1	Pearson Correlation	1																								
	Sig. (2-tailed)																									
DS2	Pearson Correlation	.288**	1																							
	Sig. (2-tailed)	.002																								
DS3	Pearson Correlation	-.097	.123	1																						
	Sig. (2-tailed)	.300	.187																							
DS4	Pearson Correlation	.002	.193*	-.054*	1																					
	Sig. (2-tailed)	.984	.038	.556																						
DS5	Pearson Correlation	-.169	.219*	.075	.211*	1																				
	Sig. (2-tailed)	.068	.017	.420	.023																					
DS6	Pearson Correlation	.295**	.191*	.104	.094	-.198*	1																			
	Sig. (2-tailed)	.001	.040	.265	.312	.032																				

DS7	Pearson Correlation	-.120	-.020	.142	.144	.140	.044	1																			
	Sig. (2-tailed)	.197	.828	.128	.121	.133	.639																				
DS8	Pearson Correlation	.172	.289**	.332**	.334**	.100	.432**	.098	1																		
	Sig. (2-tailed)	.064	.002	.000	.000	.286	.000	.291																			
DS9	Pearson Correlation	.075	.454**	.429**	.382**	.175	.234*	.125	.316**	1																	
	Sig. (2-tailed)	.425	.000	.000	.000	.060	.011	.181	.001																		
DS10	Pearson Correlation	.164	.284**	.367**	.388**	.142	.335**	.039	.503**	.221*	1																
	Sig. (2-tailed)	.078	.002	.000	.000	.127	.000	.677	.000	.017																	
DS11	Pearson Correlation	.173	.206*	.493**	.594**	.317**	.052	.332**	.272**	.525**	.083	1															
	Sig. (2-tailed)	.062	.026	.000	.000	.000	.579	.000	.003	.000	.373																
DS12	Pearson Correlation	.060	.080	.179	-.117	-.335**	.343**	.013	.281**	.052	.359**	.147	1														
	Sig. (2-tailed)	.523	.391	.053	.208	.000	.000	.892	.002	.576	.000	.113															
DS13	Pearson Correlation	.058	.211*	.232*	-.005	.072	-.114	.091	.125	.104	.008	.121	.096	1													
	Sig. (2-tailed)	.534	.022	.012	.959	.439	.222	.328	.178	.266	.936	.192	.301														
DS14	Pearson Correlation	.004	.289**	.307**	.452**	.349**	-.192*	.312**	.036	.397**	.067	.460**	.054	.098	1												

	Sig. (2-tailed)	.968	.002	.001	.000	.000	.038	.001	.704	.000	.472	.000	.561	.294												
DS15	Pearson Correlation	.166	.123	.259**	.242**	-.143	.257**	-.032	.249**	.236*	.129	.214*	.225*	.029	.325**	1										
	Sig. (2-tailed)	.074	.188	.005	.009	.124	.005	.731	.007	.010	.166	.020	.015	.760	.000											
DS16	Pearson Correlation	.013	.271**	.309**	.333**	.393**	.026	.187*	.250**	.083	.228*	.275**	.080	.233*	.075	.103	1									
	Sig. (2-tailed)	.887	.003	.001	.000	.000	.779	.043	.007	.373	.014	.003	.390	.011	.419	.268										
DS17	Pearson Correlation	.164	.096	.274**	.386**	-.458**	.353**	.088	.466**	.381**	.551**	.298**	.271**	.080	-.077	.232*	.249**	1								
	Sig. (2-tailed)	.078	.303	.003	.000	.000	.000	.344	.000	.000	.000	.001	.003	.389	.410	.012	.007									
DS18	Pearson Correlation	.139	.420**	.242**	.335**	.309**	-.153	-.034	.091	.357**	-.024	.293**	-.182*	.097	-.048	.307**	.170	.040	1							
	Sig. (2-tailed)	.135	.000	.009	.000	.001	.100	.719	.327	.000	.801	.001	.050	.298	.606	.001	.067	.668								
DS19	Pearson Correlation	-.281**	-.030	.084	.310**	.551**	-.145	.314**	-.052	.202*	-.078	.265**	.500**	.089	.342**	-.192	.226*	.034	.084	1						
	Sig. (2-tailed)	.002	.744	.370	.001	.000	.120	.001	.575	.029	.404	.004	.000	.339	.000	.039	.014	.715	.366							
DS20	Pearson Correlation	-.218*	.038	-.107	.080	.109	-.190*	-.088	.116	.085	.030	-.096	-.198*	-.012	-.124	-.037	-.101	.080	.187*	.139	1					
	Sig. (2-tailed)	.018	.684	.250	.391	.242	.041	.346	.211	.364	.749	.304	.033	.895	.182	.695	.280	.391	.043	.135						
DS21	Pearson Correlation	-.210*	-.141	-.102	-.137	.104	-.009	-.014	-.051	-.048	.041	-.096	-.015	.036	-.014	-.210*	-.141	-.102	-.137	.104	-.009	1				
	Sig. (2-tailed)	.023	.130	.274	.142	.266	.927	.877	.586	.610	.663	.301	.875	.701	.877	.023	.130	.274	.142	.266	.927					

DS22	Pearson Correlation	-.193*	.041	-.137	-.012	.053	-.125	-.119	.099	.093	.154	-.133	-.154	-.093	.108	.030	.031	.138	.113	.131	-.051	.014	1			
	Sig. (2-tailed)	.037	.661	.142	.902	.572	.181	.201	.290	.316	.098	.154	.096	.318	.245	.746	.739	.138	.226	.159	.586	.879				
DS23	Pearson Correlation	-.068	.098	.217*	-.048	.474**	-.208*	.194*	.443**	-.002	.188*	.001	.398**	.139	.368**	-.017	.278**	.169	-.052	.077	-.026	-.036	.042	1		
	Sig. (2-tailed)	.466	.293	.019	.607	.000	.024	.036	.000	.979	.042	.994	.000	.135	.000	.857	.002	.069	.578	.411	.784	.703	.653			
DS24	Pearson Correlation	.060	.050	.224*	.083	.321**	.093	.141	.312**	.135	.093	.151	.443	-.095	.369**	.132	.073	.181	-.137	.082	-.231*	-.003	.125	.223*	1	
	Sig. (2-tailed)	.518	.594	.015	.375	.000	.316	.130	.000	.147	.317	.105	.000	.310	.000	.154	.431	.051	.139	.379	.012	.975	.179	.016		
DS25	Pearson Correlation	-.034	-.079	.151	-.002	-.129	.007	-.108	-.114	.116	-.075	.085	.010	-.048	.169	.026	-.046	-.042	-.087	.108	-.099	.160	.053	.325	.402**	1
	Sig. (2-tailed)	.716	.396	.103	.986	.167	.941	.247	.221	.215	.422	.360	.913	.605	.068	.780	.619	.654	.353	.246	.288	.085	.567	.000	.000	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

(DS1-25: Dispute causes as in Table 7.4)

Table 7.14: Correlations of leadership subscales and dispute causes.

Leadership subscale	Pearson's coefficient	Dispute Code	Dispute cause
Transformational leadership			
	-.470** .000	DS4	Late payments
	-.687** .000	DS7	Lack of team spirit
	-.322** .000	DS9	Unclear responsibilities by project parties
	-.628** .000	DS14	Poor communication
	-.578** .000	DS19	Poor management
	-.322** .000	DS22	Unrealistic tendering
Transactional leadership			
	-.404** .000	DS4	Late payments
	-.328** .000	DS7	Lack of team spirit
	-.325** .000	DS19	Poor management
	-.303** .000	DS22	Unrealistic tendering

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 7.15: Correlations of organisational culture subscales and dispute causes.

Organisational culture	Pearson's coefficient	Dispute Code	Dispute cause
Clan culture			
	-.343** .000	DS7	Lack of team spirit
	-.401** .000	DS14	Poor communication
	-.309** .000	DS23	Delay by contractor than contract duration
	-.422** .000	DS24	Slow contractor response
Hierarchy culture			
	.377** .000	DS4	Late payments
	.309** .000	DS5	Incomplete tender information
	.490** .000	DS7	Lack of team spirit
	.510** .000	DS14	Poor communication
	.335** .000	DS23	Delay by contractor than contract duration
	.641** .000	DS24	Slow contractor response

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 7.16: Correlations between dispute causes.

Dispute code	Dispute cause	Dispute cause (in correlations)
DS8	Delay in obtaining approval forms	-Lack of competence of project participants -Late payments -Slow owner response
DS9	Unclear responsibilities by project parties	-Inadequate design drawings -Lack of competence of project participants - Delay in obtaining approval forms
DS10	Changing quantities and specifications in B.O.Q.	-Lack of competence of project participants -Late payments -Slow owner response -Delay in obtaining approval forms
DS11	Ambiguous quality standard	-Lack of competence of project participants -Late payments -Incomplete tender information -Lack of team spirit -Unclear responsibilities by project parties
DS12	Inadequate contractor selection	-Incomplete tender information -Slow owner response -Changing quantities and specifications in B.O.Q.
DS14	Poor communication	-Lack of competence of project participants -Late payments

		-Incomplete tender information -Lack of team spirit -Unclear responsibilities by project parties -Ambiguous quality standard
DS17	Inadequate financial planning for the project	-Late payments -Incomplete tender information -Slow owner response -Unclear responsibilities by project parties -Changing quantities and specifications in B.O.Q. -Ambiguous quality standard
DS18	Too many cultures in the project (multi-background)	-Inadequate design drawings -Late payments -Unclear responsibilities by project parties -Inadequate Site supervision
DS19	Poor management	-Late payments -Incomplete tender information -Lack of team spirit -Inadequate contractor selection -Poor communication
DS23	Delay by contractor than contract duration	-Incomplete tender information -Delay in obtaining approval forms -Inadequate contractor selection -Poor communication
DS24	Slow contractor response	-Incomplete tender information -Delay in obtaining approval forms -Inadequate contractor selection

		-Poor communication
DS25	Traits and behaviours of the project participant personal	-Delay by contractor than contract duration -Slow contractor response
DS7	Lack of team spirit	-Ambiguous quality standard -Poor communication -Poor management
DS6	Slow owner response	-Delay in obtaining approval forms -Changing quantities and specifications in B.O.Q. -Inadequate contractor selection -Inadequate financial planning for the project
DS5	Incomplete tender information	-Ambiguous quality standard -Inadequate contractor selection -Poor communication -Inadequate financial planning for the project -Poor management -Delay by contractor than contract duration -Slow contractor response
DS4	Late payments	-Delay in obtaining approval forms -Changing quantities and specifications in B.O.Q. -Ambiguous quality standard -Poor communication -Inadequate financial planning for the project -Too many cultures in the project

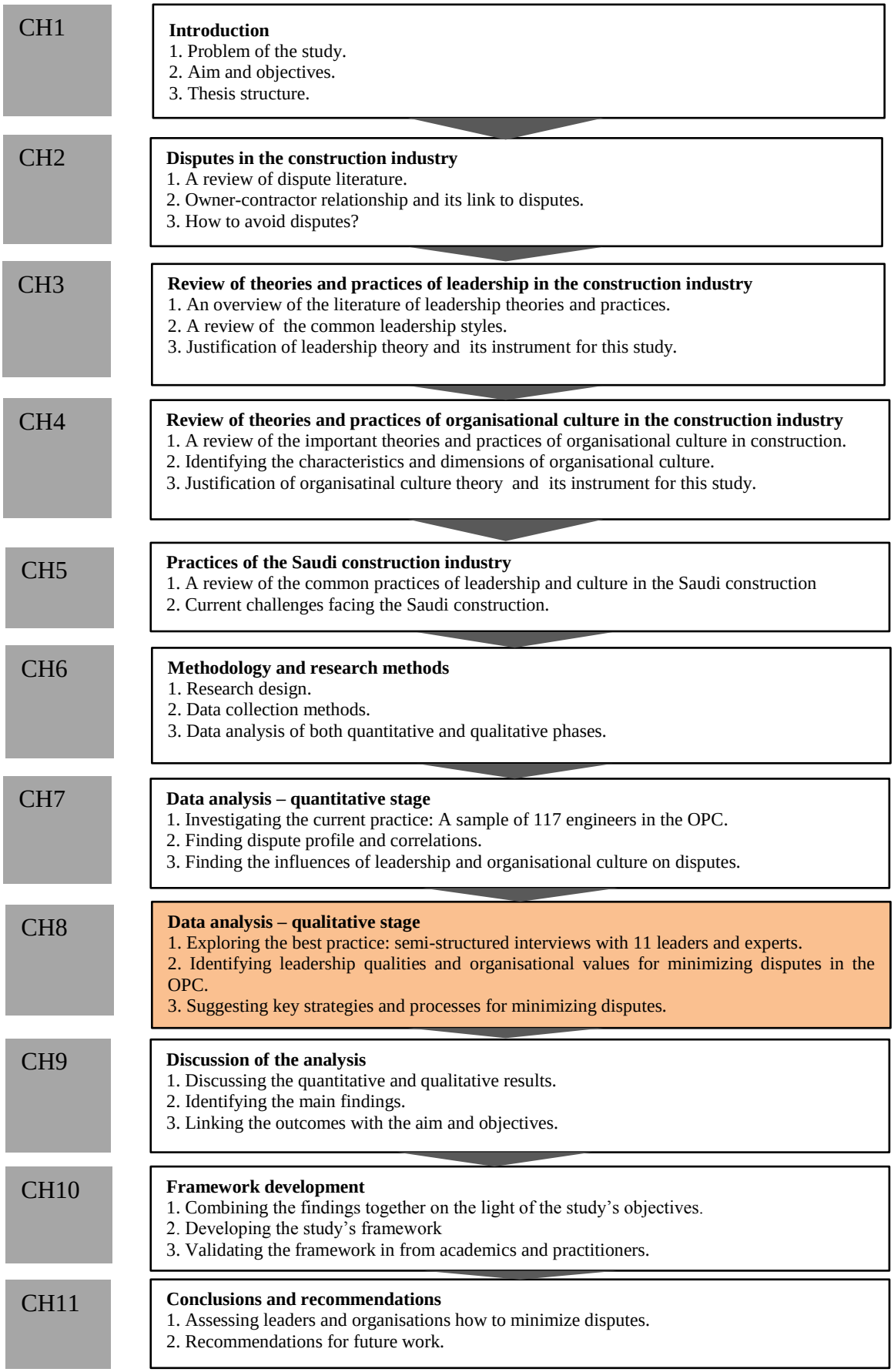
		(multi-background) -Poor management
DS3	Lack of competence of project participants	-Delay in obtaining approval forms -Unclear responsibilities by project parties -Changing quantities and specifications in B.O.Q. -Ambiguous quality standard -Poor communication

7.5. Summary

This chapter considered, analytically, the current practice of the public construction through analysing the perceptions of 117 engineers working in the OPC. The frequent dispute causes were explored through identifying the most 10 frequent dispute causes out of 25 common dispute causes taken place in public construction. The content included aspects of the main profiles of leadership style and organisational culture. The results revealed important findings regarding the practices of the owner organisations. Among these findings, it was revealed that transactional leadership and hierarchal culture were the dominant leadership style and organisational culture, respectively. Also transformational leadership has shown significant association with the reduction of dispute comparing to the other styles. Clan organisational culture was significantly correlated to dispute reduction in this context. Detailed discussion of these findings is found in chapter nine.

Next chapter discusses the qualitative analysis of the interviews data about the best practice in public construction. The results of chapters 7 and 8 will be discussed in more details in chapter 9 to develop the framework.

8 Chapter eight - Data analysis: qualitative stage



8.1. Introduction

This chapter addresses the fifth research question: how can leadership and organisational culture work effectively to minimize disputes in the OPC? The answer to this question meets objective III. Therefore this chapter represents the third stage of this research as mentioned in sections (6.5) and (6.6). As the way undertaken in chapter 7, this chapter presents the qualitative data. Chapter 9 will combine the analysis presented in chapter 7 and chapter 8 to ultimately develop the proposed framework.

The roles of leadership and organisational culture on minimizing disputes are presented detailing key qualities and values of both constructs. In additions the key organisational strategies and avoiding techniques to minimize disputes are addressed as perceived by the interviewed participants. This is accomplished through analysing data collected by the researcher through the semi-structured interviews with the insight of the study's objectives. The conducted analysis will assist the development of the framework in the coming chapter where the findings from chapter seven and chapter eight are discussed in details.

8.2. Themes of the interviews.

Thematic analysis method was discussed in details in section (6.5). Several methods are found in literature to set the interview themes, for example themes can be identified from reviewing the relevant literature of the study, the researcher's background, discussing issues with people such as colleagues and the research participants (Rugg and Petre, 2007). In this research all of the above were considered in thematic analysis. Three main themes were identified in the first place namely, dispute, leadership and organisational culture. Several subthemes were identified prior to the interviews depending on what is expected to

discuss with the participants. The themes were identified basically with the light of the research questions and objectives. During the interviews prompted themes were raised. After conducting the interviews, these themes were refined to include what has been discussed. These themes are illustrated in Table 8.1.

With open-ended questions used by the researcher, it is intended to ask the interviewee an open clear question for every theme as a starting point. Then another deeper question is addressed for the same theme. This would get the interviewee to focus more and to control the discussion and to give the interview the way to deliver the needed information to cover the previous assigned issues and themes. During the discussions, sometimes themes are emerged without interfering from the researcher side, and in other times, it is needed to raise questions. Prompting the interviewees by specific questions is a known technique that is used during interviews to find particular objectives (Gillham, 2000). Therefore, in some incidences, prompting and probing questions were used to find specific information from the participated interviewees.

Table 8.1: The main themes prompted during the interviews.

Main themes	Important Sub themes that affect disputes	Prompting themes
Dispute	Dispute awareness	Contractor involvement
Leadership	Dispute knowledge	FIDIC contract
Organisational culture	Dispute experience	Proactive detection system
	Communication	Preconstruction meeting
	Trust	Governmental regulations
	Openness	Employment selection process
	Confrontation	Lack of support
	Flexibility	Cultural awareness
	Qualification	
	Teamwork	
	Negotiation	
	Training and development	
	Partnership	
	Long term relationship	
	Contractor selection process	
	Third-party role	
	Soft skills	

8.3. Thematic analysis of the interviews

As mentioned in chapter six, eleven interviews were conducted with leaders, arbitrators and experts working in the public construction context. The selection criteria necessitates that participants must have dealt with disputes found in public construction, see section (6.6.2). That is required to meet the objective of linking the constructs of leadership and organisational culture to disputes. Thematic analysis is believed to provide an adequate knowledge through the interviewees based on best practice. The aim of this stage is to provide answers to research questions five and six:

Research question five: how can leadership style and organisational culture work effectively for the best practice to minimize disputes in the OPC?

Research question six: what are the key strategies and techniques to be incorporated in the practices of the OPC to help in minimizing disputes?

Therefore, the interview questions are devoted to the best practice based on these questions. The design of the interview questions is aimed to deliver information about the best practice of leadership and organisational culture, organisational strategies and processes and techniques to avoid disputes in the OPC. The presented analysis starts by displaying demographic information of the participants. Next the presentation continues to expose the results of the thematic analysis with a separate section for every theme. Comparisons between similarities and differences are presented among the obtained views and perceptions of the interviewees about the research themes. The interview questions are presented in Appendix B.

8.3.1. Demographic information of the interviewees

The selected interviewees are asked firstly about their personal details: age, current position and years of experience in public construction. The durations of interviews are ranged from 35 to 85 minutes. A total of eleven key professionals are interviewed including four owner leaders (managers from owner project departments), four experts (leadership and management consultants), and three arbitrators (arbitration organisations). The purpose of involving different organisations is to add more actual knowledge about best practices dealing with dispute minimization. The demographic information of the interviewees is illustrated in Table 8.2.

Table 8.2: Interviewees general profile

Interview no.	Age (Years)	Organisation	Code	Position	Experience (Years)	Interview duration (Minutes)
1	48	Owner	O1	Department Manager	22	38
2	47	Owner	O2	Multi-Project Manager	20	62
3	46	Owner	O3	Project manager	22	35
4	50	Owner	O4	Manager	26	60
5	49	Arbitrator	A1	Senior	25	69
6	55	Arbitrator	A2	Manager	27	58
7	56	Arbitrator	A3	CEO	32	48
8	58	Expert	E1	Director	30	75
9	55	Expert	E2	Senior consultant	29	70
10	61	Expert	E3	Co-founder	35	76
11	50	Expert	E4	Senior	24	85

8.3.2. Dispute evaluation and awareness in the public construction

The second question in the interview process is regarding disputes in public construction organisations.

Interview Question two: Introducing the definition of dispute, in this research, as "any contract question or controversy (which takes place between the owner and the contractor in the same project) that must be settled beyond the jobsite management staff."

Are you satisfied with the current practice of dispute minimization efforts in the OPC? How can you evaluate the seriousness of disputes taken place in the current practice of public construction?

In the start of the interviews, the researcher defines dispute to the participants focusing only on the (owner-contractor) disputes that are considered in this study. Most of the participants agree about the importance of this issue in executing public construction projects as shown in Table 8.3. Furthermore there is a shared concern about the seriousness of disputes taken place, three participants say that disputes are (very serious) 27.3%, six participants found disputes as (serious) 54.5%. The majority of the interviewees, 8 out of 11, are unsatisfied with the current practice of avoiding disputes in public construction. Moreover, they report a shortage of dispute awareness in the OPC as a general.

Although two leaders of the owner organisations are satisfied with the level of disputes and evaluate it as not serious, the other two assure the seriousness of disputes in the Saudi context. This gives an indication of the lack in the awareness of disputes among the owner leaders. Also it shows inadequacy of measures and solutions that should be employed to minimize disputes in the OPC.

O1: "the current disputes are serious in terms of magnitude and frequency, and the resolution is very difficult but not impossible, the need here for collective efforts, not just the owner's effort"

O4: "The lack of dispute awareness in the Saudi construction industry cannot be ignored, and many experts, such as Nabil Abbas, have talked about it."

The arbitrators are more concerned about the risks and seriousness of disputes in public organisations than the owners. This may be raised due to their on-going experiences with disputes which let them having more involvement in the owner-contractor disputes. Also they view the problem of dispute from different angles while owners see it from their own perspective which is partly related to their attitudes towards contractors. During the interviews, the arbitrators mentioned legal cases they had participated in, on behalf of their clients, and these helped the researcher to get a more understanding of specific dispute situations. The arbitrators view the dispute issue in the OPC as gaining less importance. An explicitly low level of awareness is witnessed on how disputes originating and how to avoid them. Importantly, the leaders and the employees working in these organisations need to be fully aware about the seriousness of this issue before going to further avoiding processes.

A3: "Talking about disputes is like talking about a serious disease, if not treated completely it will grow bigger and bigger, and may kill!"

The experts also express a noticeable concern about dispute seriousness; they note an increase of dispute incidents which became more complicated than before. Lack of development of people in the public construction participated in this noticeable increase. This lack is shown in the shortage of training programs and skills improvement designed to the organisations' employees; this is reflected on their abilities to react to difficulties and challenges in the involved projects. In addition, they note that disputes in public construction seriously injured the relationships with other project parties. Adversarial attitude, for example, became a common practice between owners and contractors. The current booming in the public construction and the lack of maturity in problem-solving and conflict avoiding in the context are largely associated with the increasing seriousness of disputes. The experts assure that people working in the owner organisations have a lack of experience dealing with disputes. As the government expands the infrastructure and

developing projects, the implemented construction projects are continuously experiencing disputes of cost and delay overrun all the way.

E4: "In my opinion, disputes are the main factor responsible for destroying the relationship between people working together in one project."

Table 8.3: The seriousness of dispute in the current practice of public construction.

Organisation	Code	Dispute seriousness	Satisfaction with the current practice to avoid dispute
Owner	O1	Serious	Not satisfied
Owner	O2	Coping with regional level	Satisfied partly
Owner	O3	Normal level	Satisfied
Owner	O4	Serious	Not satisfied
Arbitrator	A1	Serious	Not satisfied
Arbitrator	A2	Serious	Satisfied partly
Arbitrator	A3	V.serious and needs prompt	Not satisfied
Expert	E1	Serious	Not satisfied
Expert	E2	Serious	Not satisfied
Expert	E3	V.Serious	Not satisfied
Expert	E4	V. seriousand disastrous	Not satisfied

8.3.3. Leadership: best practice

The third interview question addresses the role of leadership in dispute minimization focusing on the key required qualities and attributes.

Interview Question three: What is the role of leadership in the OPCs to minimize disputes? What are the influential qualities, attributes and skills that leaders need to minimize dispute?

The importance of leadership in minimizing disputes is shared by all participants. However, there are some differences in the interviewees' opinions regarding the significance of

certain qualities and skills over others. The discussion focuses on how leaders, by possessing these qualities, work effectively to minimize disputes. The owner leaders in the OPC talk about the challenging and pressing atmosphere associated with the current leadership. The leadership deal with complicated projects that involve multicultural parties and rapidly changing environments. Their view do not perceive the current leadership as weak but rather needs improvement and, importantly, more support from the top management to cope with foreseen challenges. Dealing with disputes is a matter of difficulty and it becomes worse with this complex environments. The lack of support from the top management in organisational activities can cause negative outcomes regarding dealing with conflicts and disputes raised in the project process. Regarding the significant qualities and skills needed for leaders in the best practice, they mentioned experience in dispute avoiding, self-discipline, row modelling, effective communication and managing difficult situations.

O1: *"…the leadership deals with multiple projects, working with many different firms and governmental organisations. It needs to be qualified, strong and communicative, in the first place."*

O2: *"….those managers were left without support, how to deal with the arising conflicts with a contractor while there is a real shortage in the organisation manpower and resources."*

O3: *"If leadership has a real desire to avoid dispute, the solution is found by figuring out the roots behind it."*

Moreover, their perceptions of the effective leadership in the OPC can be described by the successful implementation of successful projects within budget, to the best quality, with a minimum level of disputation. This kind of leadership needs experience and qualification to cope with the challenging situation. Beside the previous qualities, team building is

mentioned as an important skill. It can be shown by bringing qualified people to work together with effectiveness and harmony; in other words 'fine-tune behaviours'.

With respect to the arbitrators, the situation is different. Leadership from their point of view is related to the national culture. They saw project leaders in the OPC as part of the Saudi culture and they are similar to other leaders working in other government organisations. They are essentially traditional managers that are not isolated from the surrounded culture. They lead organisations in line with local behaviours and traditions in their minds. They need to improve themselves with respect to cultural awareness and seek to improve themselves regarding the effect of surrounding cultures which reflect culturally in their organisations. To deal with disputes, they should build successful teams and maintain good relations with people within their organisation and with other organisations. Leaders who cannot build strong relationships cannot survive in such a complex, fragmented industry like public construction. An emphasis is made to specific qualities like openness, trust, problem-solving skills and reactiveness. They also point out to the training and personnel development of leaders in the owner organisations and suggest 'designed' courses for leaders on dispute resolution, interpersonal skills and team building and communication skills.

A2: "leaders are affected mainly by their culture, in order to lead successfully, they should learn more about the culture they work in which has the effects on leadership and people inside the organisation"

A3: "……maintaining good relations with organisations, teams and individual is a key factor for good leaders; from my personal experience, leaders who fully possess this important skill are rarely found in the public construction."

The experts, on the other hand, condemn current leaders, describing them as (displaying charisma with a lack of real leadership). To improve the current leadership, a real change must be undertaken. The weakness is found in the lack of communication, ignorance of

people needs, caring about achievements more than people needs. They have little experience in disputes, and even less experience in leading and managing conflicts. Leadership needs to be (dramatically) developed in terms of inspiration, filling the gaps between themselves and the others which is displayed in lack of communication skills, cooperation, and in being both helpful and productive at the same time.

E3: "it can be said that, to a large extent, that the current leadership is weak when dealing with problematic issues; successful leadership must be very effective in difficult times…..regarding dispute engagement, they show lack of experience."

E4: "Real leadership is much needed; it is, really, a challenging time for the current leaders in the public construction sector."

The main leadership qualities and skills mentioned here are shown in Table 8.4.

Table 8.4: Key leadership qualities to minimize dispute, (Results from the interviews).

Key leadership qualities to minimize disputes (from the interviews)
experience in dispute
Self-discipline
High qualification
Effective communications
Openness
Trust
Problem-solving skills
Reactiveness
Team building
Concern about people
supportiveness

8.3.4. Organisational culture- best of practice

Before asking the interviewees the questions regarding organisational culture, it was decided to give them a brief about this topic starting by defining this concept, and by showing a description of the four type's organisational culture as presented in Figure 8.1. This introduction is necessary because of the ambiguity regarding perceptions of organisational culture amongst people working in the Saudi public construction.

Of the OPC leaders, two of them prefer hierarchical culture, and the other two chose clan culture. This explains the difference in perceptions among the OPC leaders towards organisational culture. Their claim is that working in a pressing environment, with demanding top management needs them to work harder to meet the required achievements; this forces them to maintain specific culture with more control and task oriented. This controlled culture enables them to lead the organisations towards achieving the assigned tasks. Although, it seems that they are not completely convinced to have this culture, the current situations impose such a culture to be developed in their organisations. They argue that leaders should acquire control and use some kind of power to accomplish specific tasks; they add that 'soft leadership' can't survive in a challenging environment like public construction. Some characteristics of the preferred culture are mentioned during the interviews, namely, commitment, maintaining smooth running organisation, wise control, and stability and monitoring work and noting mistakes.

O1: "Talking from a leadership point of view, being at the top responsibility of the department, reporting to a demanding top management, working with a set of required goals in your mind, tight time schedules at your desk… all of these challenges need you to lead your organisation with control and discipline,….and at the end of the day it works."

O3: "I think the best model for organisational culture that suits our Saudi national culture and traditions is powerful, controlling, with more focus on monitoring; hierarchical might be the best."

These views are not unexpected since the leadership style found in the OPC was transactional leadership which focuses on achievements more than people issues. It is important to link this kind of culture with the needed leadership qualities and attributes to the OPC, section (8.3.3), revealing the important of change in current leadership practices which are highly linked to the views of the owner leaders about the needed culture.

The other two OPC leaders mention the need for change in the current organisational culture of the OPC. Although they work inside hierarchical cultures, they note weaknesses among leaders in terms of openness and flexibility. Also their views include that current policies and practices are against the idea of partnership with other organisations. Owner-contractor relationships are associated with problems and difficulties.

They urge for change the relationships inside and outside organisations. Leader-employer relationship must be improved to which is reflected in the relationships with other parties. Also, if the employees felt uncomfortable they may escape to other organisations. Without acquiring adequate levels of openness and flexibility, the implemented projects which involve different teams and parties will have difficult situations. Effective communication has a key role in building successful relationships with contractors and other working parties.

All of the participated arbitrators report that clan culture is the preferred type of organisational culture. They insist that change must take place in the current prevailing culture, i.e. hierarchal culture, which featured by adversarial and confrontational aspects. A comparison is made here between owner's culture and contractor's culture. Contractors generally have market culture while the OPC have hierarchical culture. Due to the manifested differences in these two cultures, disputes often occur between the two parties.

The OPC have a 'best value' goal, whereas contractor's goal aims to 'high profit' projects. This conflict in benefits causes a natural level of misunderstanding, but it must not escalate to more severe results. To avoid confrontational attitudes that could emerge in the owner-contractor's relationships, an atmosphere of openness, effective communication and 'partnership' attitudes should be maintained. Moreover, the arbitrators urge leaders and employees to be aware of the importance of owner-contractor relationship and how to continuously strengthen this relationship considering cross-cultural differences and conflict avoiding processes between the two parties.

A3: "From my personal experience ... one important aspect of this topic comes to my mind. It is the relationship between the employees and their leadership. You can tell if the culture is strong (if this relationship is powerful and healthy) or weak (if this relationship is weak).I think a friendly-relationship culture may explain the issue"

A4: "...the aspect of partnership between owners and contractors is not yet employed in the public construction although it is recognised one of the best strategies to reduce disputes; maintaining strong relationship is in favour of all partners."

The arbitrators also demonstrate a real concern regarding the current hierarchical culture which may face more challenges due to the increasing number of mega projects and expansion in the infrastructure of the public construction while weak preparedness is found nowadays. Inadequate organisational qualifications, in terms of knowledge, technology and experience have affected organisational culture. In addition, the inherited culture of public construction has also a negative impact. Adopting strong culture as defined in section (4.9) can improve organisational practices through employing values of change that include professionalism, openness, team culture, morality and team member behaviours. Strong culture is characterised by the differentiated values and beliefs found in the practiced activities of members and the coherence maintained among them (Schein, 2004).

Moreover, training and development are emphasized by the arbitrators to educate people on organisational culture aligned with special training on how to build successful relationships. Another important feature is noted here to involve transparency in the practices of the owner organisations; it can enhance an open and trusting culture. The FIDIC contract is mentioned to emphasize that it can assess the availability of positive

The Clan Culture A very friendly place to work where people share a lot of themselves. It is like an extended family. The leaders, or the heads or the organisation, are considered to be mentors and perhaps even parent figures. The organisation is held together by loyalty and tradition. Commitment is high. The organisation emphasises the long-term benefit of human resources development and attaches great importance to cohesion and morale. Success is defined in terms of sensitivity to customers and concern for people. The organisation places a premium on teamwork, participation, and consensus.	**The Adhocracy Culture** A dynamic, entrepreneurial, and creative place to work. People stick their necks out and take risks. The leaders are considered innovators and risk takers. The glue that holds the organisation together is commitment to experimentation and innovation. The emphasis is on being on the leading edge. The organisation's long-term emphasis is on growth and acquiring new resources. Success means gaining unique and new products or services. Being a product or service leader is important. The organisation encourages individual initiative and freedom.
The Hierarchy Culture A very formalised and structured place to work. Procedures govern what people do. The leaders pride themselves on being good coordinators and organisers who are efficiency-minded. Maintaining a smooth-running organisation is most critical. Formal rules and policies hold the organisation together. The long-term concern is on stability and performance with efficient, smooth operations. Success is defined in terms of dependable delivery, smooth scheduling, and low cost. The management of employees is concerned with secure employment and predictability.	**The Market Culture** A results-oriented organisation whose major concerns is with getting the job done. People are competitive and goal-oriented. The leaders are hard drivers, producers, and competitors. They are tough and demanding. The glue that holds the organisation together is an emphasis on winning. Reputation and success are common concerns. The long-term focus is on competitive actions and achievement of measurable goals and targets. Success is defined in terms of market share and penetration. Competitive pricing and market leadership are important. The organisational style is hard-driving competitiveness.

Figure 8.1: The organisational culture types, (Cameron and Quin, 1999).

culture; this culture illustrates how to deal with contractors and how to react to emerging disputes in very positive way. A fundamental key enhancement to this culture can be considered in bringing qualified people (leaders and employees). There is evidence from practice that FIDIC can work in more efficient way than the current Public Works Contract PWC.

Most of the experts, on the other hand, suggest clan as the preferred culture. One of them did not choose any type, he thought of a mixture of the four types, depending on the surrounding circumstances of the organisation. Apart from this, all of the experts' views about the components of organisational culture were almost the same. They emphasize that the OPC need to be more open, caring about people, maintain good relationships inside and outside the organisation, have motivations among members by all means. The communication factor is raised, especially with other organisations. A suggestion is addressed to send people on programs and courses to enhance their communication skills. Strong cultural organisations are characterised by strong bonds and relations among their employees. Regarding disputes, they note from experience, that organisations having weak cultures tend to have more disputes with other parties. For example, if an engineer in a project department felt uncommitted, uncomfortable, unmotivated or not sufficiently recognized, he may deal with contractors' mistakes and poor achievements in an 'adversarial reaction'. Main key values of the preferred organisational culture are presented in Table 8.5.

E2: "……if we compare the concept of organisational culture in private and public sectors, it is quite explicit that private sector is more effective. The culture in public sector needs to imitate the private sector culture in terms of cohesiveness, being open to new ideas, and having strong relationships among the employees."

Table 8.5: Key values of organisational culture to minimize dispute (Results from the interviews).

Key values of organisational culture to minimize disputes (from the interviews)	
Openness	Commitment
Cohesiveness	Morality
Team work culture	Amicableness
Effective communications	Cooperativeness
Partnership attitudes should be maintained	Commitment

By linking the above key values of culture obtained from the leaders and experts to the four types of culture of Figure 8.1, it shows that these values can be found in clan culture more than any other culture. The reason behind this is that more family and friendly culture is highly needed to effectively reach organisational goals. The experiences of the participants dealing with many organisations in the public construction helped them to find what are needed to be changed in the current culture.

8.3.5. Owner-contractor relationship

The best practices tend to enhance the bonds between owners and contractors and to recognize potential obstacles. A question is addressed to the interviewees: how can the (owner-contractor) relationship be improved in the public construction context? This question is linked to disputes in such that maintaining healthy relationships can reduce disagreements and consequently can affect positively dispute minimization. In responding to this question, the OPC leaders emphasize that the professionalism and qualification of contractors affect the mutual relationship. The contractor's weakness and lack of qualification can decrease the possibility of good cooperation and trust with owners. However, with professional contractors, the situation is different since they have professional teams and personnel who can understand the needs of the owner and this enable them to build successful long-term relationships. The OPC leaders also mention the

importance of 'preconstruction meetings' that enhance good understanding between the two parties; these meetings can reduce misunderstanding and can facilitate personal connections.

O2: "...some contractors know how to build good and long-term relationship with an owner, simply by bringing professional personalities that interact professionally and creatively with the project supervision and management. However other contractors, can be large companies, but they still don't have the "key people", they are incapable of maintaining good relationships."

The arbitrators, on the other hand, emphasize the role of leadership in facilitating good owner-contractor relationships. Leaders have to be committed towards partnership through encouraging teams and individuals to adopt positive attitudes. The experience and background of leaders have an effect on maintaining strong relationships. Other factors can be found in the traits and behaviours of organisation's members. The involved arbitrators admit that generally owner organisations tend to have adversarial behaviours toward contractors. This attitude has its partial origin inherited from the prevailed culture of public construction. Leaders have an important role in fighting these destructive attitudes and also they need to find the causes of this confrontational attitudes and work cooperatively to clear them. Lack of experience, prevailed weak culture and the absence of leadership's influence are main reasons for weak relationships. Training of team members with interpersonal skills can help to have long-term relationships. Additionally, the arbitrators suggest that the role of leadership towards maintaining good relationship with contractors depends on the following factors:

- Commitment
- Eliminating obstacles
- Facilitating
- Establishing interpersonal training among members
- Monitoring any diversion

The experts rather have different view toward the owner-contractor relationship. They feel that lack of awareness of the 'virtues' of building strong relationships among both parties prevailed on the current practice. Some leaders are convinced with the major benefits of the partnership concept, but they either don't have the effective qualified staff, or do not have the top management support. They maintain what is called a 'comfortable zone' in which they lead as previous practices. However, establishing partnership needs cooperative efforts from all of the project members and parties; continuous training is good enhancement in this regard like designed workshops and seminars in both local and international levels. The experts also emphasize the role of leaders to work against 'opportunistic attitudes' that are witnessed in the current practice. A long-term strategy has to be established from the owner side. Beside that members must be educated about the virtues of partnership and the valuable benefits for all parties and all of them must participate effectively in this strategy. Key values associated with partnership include trust, good faith, integrity, good communication channels and cooperative attitudes among all project members. Both owners and the contractors have to agree how they can resolve conflicts before a project started, this agreement can be called 'problem solving agreement'.

E3: '' I think to establish a partnership strategy in a very "relaxed" public construction is hard job, but accomplishable, this job needs shared efforts. Every organisation in public construction must work effectively towards partnership because results are for all"

From the experts' point of view, main key ingredients for successful (owner-contractor) partnership can be seen in the following points:

- Mutual trust.
- Partnership strategy.
- Commitment among parties.
- Good faith.

- Continuous partnership workshops ant training.
- Good communication.
- Problem solving agreement.
- Work against ‘opportunistic attitudes’.
- Work against ‘adversarial attitudes’.

8.3.6. Strategies and techniques for minimizing disputes

The final interview question is: Apart from leadership and organisational culture influences, what are the major strategies and techniques that you suggest to be employed by the OPC to minimize disputes? In responding to this question, the owner leaders emphasize on the need for risk allocation, in the first place. They comment on the lack of sensible risk allocation in the current practice. They add that training in dispute avoidance must be programed for both leaders and employees. These training courses should involve applicable knowledge concerning the types of disputes recurring in public construction and how to control them to the minimum levels.

O4*: “Developing people learning of dispute awareness is very important in minimizing disputes. The dispute knowledge about dispute avoidance before 10 years can’t stand for the current time; it needs continuous learning”*

They also mention that in some of the owner organisations (project departments), training courses about disputes are held. However, these courses lack updated and comprehensive contents. They have to contain all types of potential disputes, the ways and processes to avoid them and how to manage them after emergence. Two of the interviewed leaders suggest involving contractors in the awareness processes. Preconstruction meetings are examples to address potential disputes and discuss how to avoid them in adequate time before a project starts. Contractors have different views and levels of awareness regarding

disputes; therefore participation in these meetings can enhance better cooperation in this direction.

Moreover, the OPC leaders report that any addressed process in avoiding dispute should take into consideration two important challenges: 1) the governmental regulations and procedures of every project, and 2) the contractor ability. There had been no updates in the contractual regulations for the last 20 years, while the issue becomes more pressing and bringing severe consequences to the contracting process. Adding to this, there is a lack of dispute regulations in the governmental contract PWC. New updating to the current PWC contract must take place urgently through adopting new provisions and by interviewing key practitioners and experts working in the public construction. Added to this, it would be very helpful if the government could take advantage of the experience of the private sector in this regard. With regard to contractor ability, weak contractors make the supervising task in the owner organisations more difficult. A key factor that is related to the witnessed weakness of the involved contractors can be found in the contractor selection process resulting from the 'lowest bidding' strategy. This process is responsible, in the owners' view, for raising the number of disputes with contractors. A number of projects experienced deficiencies, conflicts and delays due to contractor's inadequate qualification. Substantially, the current procurement process in the public construction has to be changed to a better process. The lowest bid process also causes more confrontations with concerned parties. 'Two envelope bidding' procurement or 'design-build contract' are suggested by the owner leaders to replace the current process.

The arbitrators on the other hand, comment on the importance of employing FIDIC contract in the public construction practice. They claim that it would enhance the partnership with contractors and minimize the adversarial attitudes. The partnership between owners and contractors can add more benefits for all. The practice of partnership in other construction contexts has proven successful consequences. Long-term partnership is very useful in sharing success and increasing the understanding between parties. In

addition, sensible risk allocation is raised as an important strategy that can reduce potential conflicts provided the involvement of contractors with 'good faith' mentality. They mention, in this regard, that countries that do make use of this contract have dealt with disputes in more effective ways by establishing the concept of partnering with contractors. Dispute issues are mentioned clearly in the FIDIC contract, and therefore conflicts and disputes can be reduced.

A3: "FIDIC has been introduced in Bahrain and Qatar recently, noticeable improvements have been found, reflecting the importance of this step in the Saudi contracting. One of the important characteristics of FIDIC is that it regulates disputes……practices of FIDIC have proven its effectiveness in building good relations with other parties".

The concern of contractor procurement process is also shared by the experts. They saw it as an inherent difficulty in the current PWC that needs an urgent solution. There are many delivery systems that have been proven to effectively work to better results. They add that partnership should be instilled in the environment of project implementation to gain the benefits of common goals and benefits and to reduce confrontations. Although this concept is not ideally found in the culture of the OPC, leaders must manifest the benefits of partnership and educate people toward exhibiting the best behaviours regarding the targeted organisational relationships. The proposed strategies to avoid disputes should include an improved process for selecting professional and qualified contractors and financial planners. Moreover conducting meetings prior to projects, like preconstruction meetings, can reduce potential disagreements and also can build a level of understanding between the teams.

On the other hand, leaders can design 'proactive detection systems' that can discover any possibility for conflicts or disputes. This system can be a collaborative process meaning that all members have to participate and work together to detect any possible conflict. Moreover leaders are called to have cooperative decision making in order to increase the

sharing among selective key people to enhance the confidence and commitment of the organisations' members.

E2: "…..PWC has many problems and weaknesses due to its unsuitability to the rapid changes in construction projects. The authority must work to change this contract to a compatible, comprehensive and reliable contract".

Conversely, the experts have different view about bringing the contractors into the awareness process; they argue that the owners have the power and the influence and therefore the responsibility of dispute awareness relies on them. Dispute awareness among leaders is a key factor in the whole process. The awareness strategy should start from the top, i.e. from leadership, if leaders are qualified, and have the necessary awareness at the same time, they can assist the organisation's members to learn more and get the required knowledge they to avoiding disputes. If the leaders were not aware of dispute knowledge, the members cannot cope with the proposed avoidant processes.

The experts, also, focus on the role of leaders in addressing an employment selection process that is aiming to select aqualified staff. They realize that the personality of the people involved is an important issue and has an effect on the culture maintained in the organisation. In other words, the selected people have to cope with this culture. Table 8.6 summarizes the key strategies and techniques revealed by the interviewees.

E2: " We can say profoundly, that people involved in the project are the milestone to make success or failure, so I hope leaders can attract talents and keep them as long as they can….".

Table 8.6: Key strategies and techniques to minimize disputes.

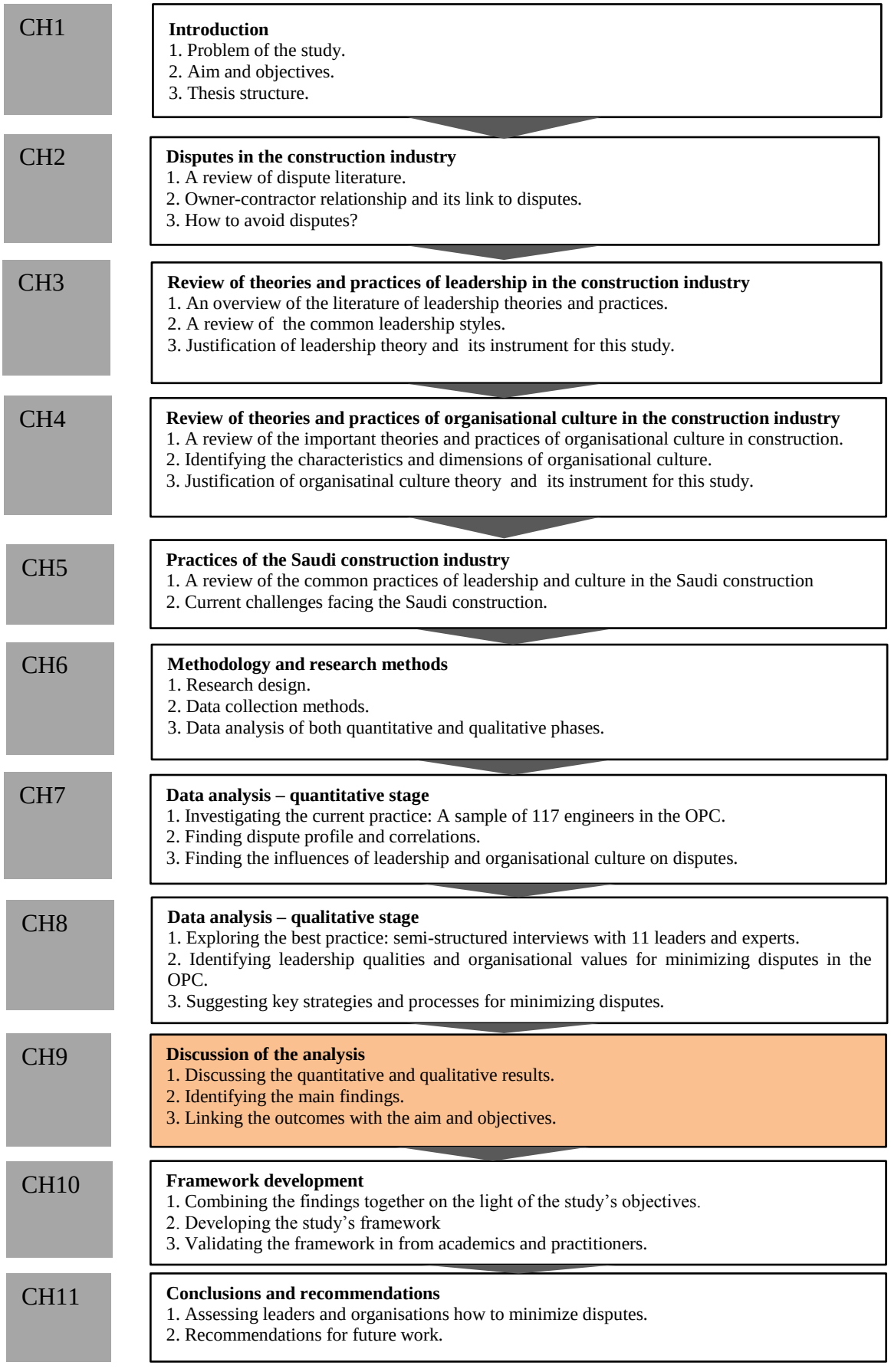
Key strategies to minimize disputes (from the interviews)	Key techniques to minimize disputes (from the interviews)
Partnership	Effective risk allocation
Alliancing	Contractor involvement
Continuous training and development	Effective tendering process
Dispute awareness	Proactive detection system
	FIDIC contract to replace PWC
	Preconstruction meeting

8.4. Summary

This chapter set out to explore the best practice in minimizing disputes in the OPC. Data was obtained via semi-structured interviews with eleven key leaders and experts in this context. Most of the participants preferred the clan culture (63.6%), while hierarchical culture was recommended by 18.2% of the participants. The importance of leadership in dispute minimization was manifested by the interviewee's notes and recommendations. To the best practice, the participants recommended prompt changes to be made in leadership and organisational culture. Substantially, the participants emphasized on establishing a culture of partnership for improving the current practices of public construction.

Key strategies and processes to minimize disputes raised during the interviews involved partnership, continuous development and training, contractor involvement and preconstruction meetings. Qualities suggested for effective leadership include qualification, openness, and communication, building relationship, inspiration and problem-solving skills. The most important values of organisational cultural that were noted by the interviewees involve openness, cohesiveness, strong interpersonal relationships, and commitment. The next chapter discusses these results coupled with the quantitative results, chapter seven, to display the main findings used to develop the proposed framework.

9 Chapter nine - Discussion of the analysis



9.1. Introduction

This chapter presents a discussion of the main findings obtained from the research methods employed in this study, i.e. the survey and semi-structured interviews. This discussion seeks to synthesise the findings to provide interpretive explanations in the light of the relevant literature and prior research, which have been deeply reviewed in the previous chapters. The discussion will help in developing a framework to assess leaders and organisations in effectively minimizing disputes.

The discussion brings together the findings of the current practice and the best practice. The current practice investigations involve identifying the most frequent disputes in public construction as perceived by the engineers working in the owner organisations. A full understanding to the causation of dispute is comprehended by studying the issue from all aspects to fill the gap in understanding the dispute causation. The influences of organisational culture and leadership on the occurrence of disputes are exhibited in this chapter to meet objectives I and II.

The best practice is explored to assess organisations in minimizing disputes through identify the proper leadership qualities and cultural values along with the key effective strategies and processes (objective III). After that the discussion develops to construct the study's framework based on the previous stages (objective IV). The final stage of the research is the framework validation (objective V) will also be covered. The chapter ends with highlighting the main findings.

9.2. Demographic characteristics

The demographic characteristics of this study have implications to the OPC. The features of young age and less experience among the owner organisation's members impact the practiced organisational behaviours and attitudes. These practices contribute to the way the

organisation behaves towards other parties. For the present study this issue is taken into account in particularly when discussing the factors affecting the emergence of disputes between the owner and contractor. These characteristics are related to the country's feature of 'youth bulge' which reveals that younger generation are found in higher rates than other countries (http://www.arabhdr.org-en.pdf). The youth is more than 70% of the country's population and many of young Saudis are looking to entrepreneurship as a career path (EC, Harris Research, 2011). In this study, it is indicated that 35.9% of the respondents are in the category of (30-39) years while 11.1% for those (50-59) years of age. Also regarding experience, most of the engineers have little experiences (0-9 years) representing a percentage of 45.3% while considerable experiences (30-39) years are found to be only 4.3%.

From the related studies, it has been found that negative 'stereotypes' are sustained in organisations that have young employees (Zeldin and Camino, 1999). These stereotypes assume that young people are unable intentionally or unintentionally to show participation towards the regular activities and practices and further to the organisations' sets of goals. However, involvement of young employees was crucial for organisations in such that it provides "*critical connections to larger social circles ... and provides a strategy for ensuring diverse representation*" (McDaniel *et. al*, 2000). The partnership of experienced and young (less experienced) employees contributes from the point of view that this synergy add different skills, beliefs values to the entire experience of the organisation. To achieve this partnership, organisational leaders have to show willingness in accepting young people in the organisational activities. It was also pointed out "*age is less important than competence*" (McDaniel *et. al,* 2000), provided that organisations recruit youngers that being able to develop knowledge and skills needed for the organisational tasks.

As attitudinal change is of importance to develop organisations, 'youth infusion' is expected to add additional experiences and attitudinal changes to the practices and the long

developed relationships. Attitudinal shift can be enhanced by interactions with young people in the same organisation. Healthy relationship between youngers and leaders has to be maintained to acquire better involvement. Researchers urge organisations to involve young people not only in regular organisational practices but rather in decision-making process (Blair and LaFrance, 1999b; Zeldin and Camino, 1999). A number of positive outcomes for organisations namely, organisational culture will have new practices and values added to its strength, bring more focus on the vision and mission of the organisation, enhances understanding between experienced employees and youngers which reflects on the connection and responsiveness to the wider circles, brings a diversity to decision-making process to be more practical and effective, contributes to employees promotion and development, helps the organisation to reach other involved parties and teams in more 'diverse ways'.

Therefore, the study's results reveal that 'youth infusion' is explicitly found in the OPC. Whilst this is the case, the involvement of young people is sought out to be positive. The majority of young people contribute to the diversity of experiences and skills of the members. It also develops more enhancements to organisational culture by adding more values and qualities. Whilst this can't be true in all of the OPC, it is a considerable feature that has an importance in this study, particularly when suggesting solutions to avoid disputes in the current practice. The people issue is important in any research investigating disputation (Love *et al.,* 2008). This is because the behaviours and attitudes of the majority of young people affect importantly the reduction or the increase of disputes.

9.3. Dispute causation and minimization

One advantage of studying dispute causation in construction projects is to develop strategies and processes to avoid disputes. Bearing in mind that disputes cannot be completely avoided, this study is aimed to suggest best practices for leaders and organisations to minimize or control disputes. The challenges in front of leaders are to

invest the necessary time and efforts into leading strategic management decisions that facilitate activities and practices towards this aim. Whilst most of the previous studies have dealt with contractual proximate and interface causes related to the technical and contractual aspects of dispute, the current study is devoted to acquire deeper understanding to the problem of dispute. Once understanding is drawn then strategies and processes can be put into practice to reduce the incidences of disputes. By conducting the quantitative and qualitative stages of the study, effective strategies are suggested to assist organisations and leaders in minimizing the occurrence of disputes and raising the awareness of how to control conflicts and disputes to minimum levels.

The results of chapter seven show that delay by contractor, lack of team spirit, slow contractor response, poor communication and inadequate manpower are the most frequent cases in the OPC. The study focuses on the opinions of the engineers working in owner organisations regarding the disputes taken place between owners and contractors. Accordingly it is important to note here that the dispute results represent the owner (client) perceptions which may contradict with the contractor perceptions regarding the same disputes. As perceived from the OPC engineers who participated in the survey, contractor' delay is a significant cause of disputes. This result was confirmed by previous studies like (Kumaraswamy, 1997; Mansfield *et al.* 1994; Assaf and Al-Hejji, 2005). This factor might be referred to the contractor selection process of 'the lowest bid' taken place in the public construction sector, (Love, *et al.* 2008). Although this conventional process is part of the Public Works Contract PWC, many researchers suggested adopting other contractor selection processes to replace the 'the lowest bid' traditional process.

The delay and slow response of contractor can also be related to weak and turbulent owner-contractor relationship, which is a key component of organisational culture. This relationship has a significant impact on the project process as a whole specifically the performance of the implemented projects which is fundamentally a cooperative effort

involving all project parties. As the interviewees note, as mentioned in chapter eight, the owner-contractor relationship in the current practice is associated with confrontation opportunistic behaviours and confusion. They emphasise that it needs to be improved to the higher level to produce successful projects. The contractor's professionalism and qualification can lead to strong relationship. Leadership of both parties, owners and contractors, has an important role to build healthy and constructive relationships.

The results of the analysis also indicate to the substantial role of OPC leadership by revealing that lack of team spirit and poor communication are linked to the prevailed practice in the owner organisations causing owner-contractor disputes. In fact leadership and managerial practices are responsible for many problems and conflicts other than these disputes. This finding is not unexpected in this study; many researchers reported the impact of leadership and management on conflicting and disputation like (Bristow and Vasilopoulous,1995; Rhys Jones,1994; Diekmann *et al.*, 1994 , Kumaraswamy ,1997; Lim and Zain Mohamed,1999; Smith ,1996). The role of owner leadership in the modern project management was mentioned in Latham report as a source of regulating contracting behaviours and reducing conflicts and disagreements as it pointed out to the 'people issue' in the construction industry (Latham, 1994; Dainty *et al.*, 2007; Green and May, 2003). This gives an indication that the current practices relating to building effective teams and maintaining effective communications have obvious deficiencies. These practices on both leadership level and organisational level have to be improved thoroughly and changed to the best practices that are applicable in the public construction.

9.4. The influence of organisational culture

The influence of organisational culture on disputes is investigated through the quantitative and qualitative approaches. To assess the research questions, the profile of organisational culture taken place in the OPC is identified. The results of the survey show that hierarchy culture is the dominant culture. Hierarchy culture is found in most public and governmental

organisations, (Cameron and Quinn, 2004). Therefore this type is expected in in public construction organisations which represent a governmental sector.

However, this study suggests that a cultural change has to be taken in the current context which reveals that the current hierarchy culture is not desired. The majority of the interviewed experts suggest clan culture to replace the current organisational culture. The examined correlations between dispute causes and the prevailed hierarchy culture support this result, section (7.4.3). These correlations show that hierarchy culture is mainly responsible for the arisen disputes in this context and in order to minimize the affected disputes, a cultural shift should be adopted in the OPC. The participated engineers in the OPC organisations were are not satisfied with the current prevailed culture.

Both hierarchical and clan culture were discussed in sections (4.5.2) and (6.6.1). They represent cultural dimensions of the Competing Values Framework CVF. Hierarchical culture is characterized by control and formality as it is the case for most of the public (government) organisations where leaders use power to influence and lead by control. In this type of culture, organisations tend to be more structured, consistence and focus on efficiency and achievements more than people issues. It concerns more about facing challenges (Alas *et al.,* 2011). The role of leaders, in this culture, is described in terms of efficiency and task orientation to achieve the organisational goals. This concept of leadership has its partial originality from the inherited culture and the past experiences. Maintaining of such a culture in a complex and fragmented business, like construction industry, is likely to increase the possibility of conflicts and disputes.

The preferred clan culture, on the other hand, is described as amicable culture that can create open and cooperative culture which affects occurrence of disputes. A number of researchers called for adopting cultures that have good interpersonal relationships and openness; that is to build a kind of partnership with the other parties, (Love, 2006). The

current study recognizes the manifested importance of maintaining friendly and open culture in the owner organisations to cope with the changing situations and managing intra and inter-organisational relationships. These organisations need to maintain effective relationships with project parties treating them as partners through building effective communicational channels. This can be achieved by fostering cultural values that can enhance the concept partnership. These key values include: openness, effective communication, cooperation, friendly atmosphere, good-faith, team spirit and concern more about people. These values are explicitly found in clan culture more than any other culture. Adopting clan culture in construction industry has been found to have better results in terms of the effectiveness of teams and individuals. For instance clan culture was associated with aspiring leadership, strengthen teamwork, high level of loyalty, encourage employer participation, employee concern and "*extended family work culture*" (Deal and Kennedy's, 1982; Oney-Yasic *et. al*., 2006).

In addition, the survey results show positive association of transformational leadership with clan culture while no correlation is found between clan culture and laissez-fair leadership. In contrast, weak association is revealed between clan culture and transactional leadership. To link these results with previous studies, Cameron and Quinn (1999) suggested an association with transformational leadership while they did not suggested associations with transactional and laissez-fair leadership with clan culture. The present result of the association of transactional leadership with clan culture can be explained by two reasons. Firstly, the transactional leadership is the prevailed style in this study and it has been proved that both transformational and transactional are similar in many aspects (Hartog *et al.,* 1997). Secondly, contingent reword as the main component of transactional leadership has significant associated with transformational leadership (Barling *et al.,* 2000).

Regarding hierarchy culture, the results show that it is negatively associated with transformational and transactional leadership while it is not associated with laissez-fair leadership. However, Cameron and Quinn (1999) suggested positive correlations between this type of culture and both transformational and transactional but he reported that negative correlations are not unexpected depending on the context and the different situations associated with the tested organisations.

By suggesting a preferable culture (i.e. clan culture) to be employed in public construction organisations, certain values to foster cultural change are highly needed. By combining the findings from literature and the present study, it can be concluded that among the suggested key values are openness, cohesiveness, team work culture, effective communication, partnership attitude, commitment and morality cooperative. Maintaining a culture that can effectively deal with conflicts and disputation is highly important. While the mentioned values have indirect relationship to disputes, values related directly to dispute minimization include: flexibility, maintaining amicable attitudes (against adversarial attitudes) and conflict adverse culture.

9.5. The influence of leadership

By discussing the importance of leadership in the OPC, it is better to highlight the reflections of the results found in the current and best practice, chapter seven and eight. While most of the respondents in the survey report that transactional leadership is dominating the owner organisations, the interviewed participants mention that the current leadership practices have deficiencies and weaknesses. They added that the current leadership is incapable to cope with the challenges ahead in the public construction context. Reasons for the weaknesses of leadership are linked to the culture of construction industry which is characterised by problematic nature and fragmentation. National culture, on the

other hand, is expected to have some influence on the current leadership. Other factors may include past experiences, lack of qualification, and personalities of leaders.

Therefore, for the best practice, this study suggests transformational leadership to be adopted in the public construction. As shown in chapter seven, a key finding reveals that transformational leadership minimizes frequent disputes and can work towards building successful relationships with contractors which in turn reflects on dispute reduction. Also it is found that transformational leadership is positively correlated with clan culture more than any cultural type suggesting that adopting both transformational leadership and clan culture in public construction can have better outcomes for organisations and individuals.

The impact of transformational leadership is displayed on creating a shift in the individual core values toward shared set of goals and objectives to reach success for both the organisation and its members. More significantly, leaders who behave in good manner with the employees can maintain good relationships with them that increase mutual understanding. These leaders have a vision in their mind that are spread out in the organisation and adopted by the employees. Among the key qualities found in this leadership style are trust between leaders and employees and trust with other parties. Trust is considered as a key factor in successful projects that affects positively the project's outcomes. In the Saudi public construction, trust is at low levels because of leadership practices and the type of culture prevailed, i.e. hierarchal culture. Importantly in order to have high mutual trust, both leaders and members have to seek more behaviours and practices to improve trust. For instance to show openness, strong personal relationships and positive attitudes can improve trust between leaders and their employees.

Team spirit is also another quality that has a specific importance. In consistence with the current study, team spirit is manifested among teams and individuals in strong cultures

through encouraging participation and cooperation in people-oriented context. Due to the lack of moral values in the current practice, it is suggested that leaders adopt more effective behaviours and values to foster and maintain the values of positive cultures. Bristow and Vasilopoulous (1995) reported that lack of team spirit and communications were among the most important causes of disputes.

Literature suggests specific leadership qualities that are needed to foster change in organisations. However some of these qualities are not suitable for the Saudi public construction due to its nature. Therefore certain qualities should be suggested for the best practice. A key quality that is needed in the OPC is to create a strong culture. Among other key qualities there are: people-orientation, openness, trust, reactiveness, team building skills, supportiveness, and maintaining effective communications. Regarding the awareness of disputes in this leadership, a number of qualities are of importance like: problem-solving skills, interpersonal skills, reactiveness, conflict and dispute avoiding experience.

A considerable concern is drawn towards leadership relationships intra and inter-organisations. Therefore, organisations in the context of public construction have to bring qualified and effective leaders that can lead successful projects through considering individuals' needs and maintaining good relationships with the other organisations. This can reflect in having fewer possibilities of conflicts and disputes. The question that can be raised here is whether these relationships are adversarial or corporative? An answer to this question will be addressed in the next sections.

9.6. Key organisational strategies and processes to minimize disputes

Changes in leadership and organisational culture are suggested in the present study to minimize disputes. However these organisational changes can not alone drive organisations to have effective solutions to the dilemma of disputes. Effective strategies to control disputes are needed in organisational levels and they are considered as integrative part for the full solution to the problem of dispute. Therefore effective strategies for avoiding disputes have to be employed in the OPC. Leaders should take their roles in establishing and supporting the proper strategies to work as 'defendant layers' against disputes. The key strategies emerged from the present study are discussed in this section.

9.6.1. Continuous development and training

Although the demographic results of the sample used in this research show that 93.2% of the participant have Bachelor Degree in engineering, more concern about seriousness of disputes are reported by the involved participants. This necessitates establishing generic strategies for continuous development and training in the OPC. When studying disputes in construction organisations, it is noted that the behaviours and reactions of people regarding how to deal with conflicts and disputes are points of question. This result can be linked to the seriousness of disputes maintained in the current practices of these organisations.

Construction projects are complex environments that face potential conflicts and disputes which need creative, qualified and acknowledged staffs. Continuous development programs for leaders, engineers and other staff are importantly needed, particularly in public construction, to meet this issue. The established strategy must start from the recruitment process in selecting the needed staff to work in new projects. The study suggests that the OPC have to care more about staff selection process that should contain particular tests and carful interviews that are related to the needed skills and attributes of problem-solving and

conflict avoidance. People enrolled in construction projects have to acquire 'dispute avoidance skills' that enable them to work with different teams and to have good personal skills to deal with internal and external conflicts that are endemic feature in construction projects. The development must involve selective training in disputes (for example conflict and dispute avoidance programs), emotional intelligence, step negotiation, behaviours and effective communications.

9.6.2. Culture of continuous improvement

Sustaining continues improvement is key strategy for successful organisations. Culture of continuous improvement is defined as a balanced relationship between the organisation and the employees (A Culture of Continuous Improvement, 2013). While the employees are encouraged to find better practices, ways and solutions for potential problems, the organisation provides the needed support and job security. Organisational improvement is coincided with changing the culture which moves forwards towards embracing improvement on regular basis. This can transform the organisation to a better level in terms of dealing with challenges and problems in more innovative attitudes. As long as the organisation and its members follow this strategy, tough tasks and difficult situations can be easily treated. This continuous improvement is related to cultural values, leadership qualities and individual's behaviours. Leaders have the key role in supporting this strategy depending upon his/her influence and the relationship with organisational members. It is expected that this strategy can help in minimizing disputes since problem-solving issues are explicitly exhibited in its implementation.

Developing a culture of continuous improvement can be enhanced in construction organisations by several means. It depends on the context these organisations work within and the desirability of both leadership and members. Brockman (2009) pointed out to the effect of sense-making process in reducing complexity in mega projects. This process, in

order to work effectively, have to be supported by management through "*…a score of communicative platforms, among them are personal communication, formal or informal meetings, events, festive celebrations, and an intranet. However, management must exploit the opportunities to the fullest extent possible."* It should be noted here that maintaining a culture of continuous improvements is highly linked to the adopted organisational culture. Leaders and organisations' members have to realize that continuous improvements not only help in achieving better performance and long-term organisational goals but also reduce conflicts and disputes in the project process.

Therefore the OPC have to maintain this kind of culture to be embodied in their regular practices. Key actions to this can be implemented in regular meeting among key people to discuss past practices and to determine what kind of improvements have been accomplishes and in the same time to identify weaknesses among practices that should be changed. Also it is advised to meet key professionals in other successful organisations to find good ways to improve current activities and behaviours.

9.6.3. Strategic Partnering

Due to the adversarial attitudes taken place in the involved relationships between owners and contractors, researchers and commentators in construction industry called for some contracting approaches to regulate and improve these relationships. The participated interviewees in this study agree on the necessity of employing a strategy of partnership in the public construction. They add that the increasing risks in this sector impact on the notable increase in conflicts and these risks need to be shared through specific types of arrangements. The idea of partnering in the best practice of public construction has its support from construction literature. Cheung *et al.* (2006) reported that partnering minimizes the confrontations and tensional relationships between parties with the ideal choice to enhance the cooperative attitudes. It is important that partnering attitude concepts

are added in contract specifications to create a cooperative culture between the concerned parties. It was confirmed that partnering if incorporated properly would reduce disputes coupled with promoting communication and building successful relationships.

In adopting partnering, an understanding through time is build directing both parties in common goals and objectives. Due to the apparent advantages of partnering in construction industry, it is widely embraced. Bringing people to work together in this form of strategy is not an easy task; it rather needs values to be behaved such as commitment, effective communication, and trust among all members. The attitudes of confrontation that lead mostly to sensitive relationships between owners and contractor have to be shifted to more cooperative approaches like clan culture. This shift can minimize conflicts and disputes. Some advantages of the partnership strategy may include the following benefits:

1. Collaborative relationships among all members.
2. Sharing common goals and objectives
3. Sharing risks and reward
4. Reduce incidences of conflicts

In the OPC, leaders are called to find channels to enhance partnerships with main contractors in the scope of work. Then they should keep healthy relationships with them and seek long-term cooperation. By this they can enhance mutual understanding to achieve common goals for both parties which reflects greatly in minimizing disputes and disagreements.

9.6.4. Strategic alliancing

Alliancing, like partnership, between parties can bring harmony and success to the contracting process. It is a long-term relationship strategy between an owner and a contractor which can make a change in the behavioural attitudes and align the divergence in

both parties to a common goal with 'win-win attitude'. This strategy can increase the capabilities of both organisations to share experience and knowledge producing successful outcomes of projects.

Potentially, disputes can be reduced in this strategy due to cooperative atmosphere built between key participants. Although the benefits and reward are apparently found in alliances, values and skills like trust and effective communication aligned with conflict solving are highly needed (Howarth *et.al,* 1995). When trust between the alliancing teams found, both parties can focus on the shared goal working together openly and reduce the formality and control and consequently this kind of attitudes lower the likelihood of inter-organisational conflicts. It is important in this regard to note that alliancing is different from partnering in such that partnership implies that both organisations agree on goals and work plans as well as dealing with dispute emerging during the partnership but they are 'independent' and can gain or lose. Whereas, in alliancing both parties work through an agreement of formal contract and share risks and rewords in this case.

Alliancing can be incorporated in the POC, like partnership, by signing contracts with professional contractors that have been worked with and examined to be good partners to the organisation. By alliancing not only high quality projects are delivered but conflicts and disputes can be eliminated.

9.6.5. Dispute avoidance programs prior to projects execution

The awareness of disputes among leaders and engineers working in the owner organisations is essential to diagnose the potential conflicts and disputes that may occur. In this regard, lack of dispute knowledge, construction law and management practices have a direct impact on the increase of dispute occurrence in local and international projects (Chan *et al.,* 2006; Chan and Tse, 2003). An organisational strategy to minimize the possibility of

dispute before projects start must be implemented to achieve that goal. The interviewees suggest an example for these strategies to tackle dispute occurrence as 'integrated digital modelling'. Introducing this strategy in early design stages can predict 'clash detection' incidences (CRC Report, 2007). Also involving parties like contractors and consultants in project design would enable a sort of integration for all efforts which would enhance clash detection. The important aspect of this modelling is the early discovering of potential disputes which can enable projects' members to resolve conflicts in very early stages. The study suggests the use of integrated modelling coupled with risk allocation strategies in the OPC to reduce the possibility of disputes in the implemented projects.

9.6.6. Pre-project planning

Pre-project planning needs to be incorporated in the organisational practices as a strategic approach. This process is important due its enhancement in managing risks before occurrence and this in turn controls conflicts and maximizing project success. In this process, obstacles and constraints can be predicted and solutions afterwards are suggested. The involvement of other parties in pre-planning process is valuable in reducing disagreements and conflicts in the implementation process.

9.7. Key dispute avoidance techniques

The previous section discussed the key organisational strategies and processes needed to minimize disputes. These strategies are applied in organisational level. To avoid disputes techniques and tools are needed to be applied in daily tasks when teams and individuals interact with other project parties. These techniques should be incorporated effectively in the practices of organisations.

9.7.1. Identify the frequent disputes and set measures to avoid them

As construction projects of different contexts are similar in many aspects, disputes causes show much similarity in different contexts. Therefore identifying the most frequent causes of disputes enhances the awareness among leaders and organisations' members to set policies and change practices to avoid them. Organisational practices are responsible of most recurring disputes and then identifying these disputes and understand them can change organisational practices and behaviours to minimize risks of disputes.

9.7.2. Effective tendering process

Traditional contractor procurement processes are applied in all of the government projects (Al-Jarallah, 1983, and AlGahtani, 1991). The Governmental Procurement Regulations GPR was issued in 1966 and revised in 1977 (GPLR, 1985). The GPR controls, regulates and implements all of the government projects through the PWC which was prepared in 1988 (GPLR, 1985).

This procurement process has experienced deficiencies in the relationship between owners and contractors. The 'law-price tendering process', which is very popular nowadays is responsible, as reported by many studies, for adversarial relationships among project parties (CRC, 2007). The contractor that won the competition pays the full attention to the project profit or loss in the first place. This is against the owner's aim which concerns about quality and timing. Lack of trust and confrontation are associated with this selection process due to different attitudes. Alternatively, researchers suggested selective tendering which is thoroughly discussed with contractors to reach profitable margins that can satisfy both parties (Love *et al.,* 2008). This process can sustain trust and corporation and brings parties to a commonplace and ultimately may enhance understanding and reduce the possibility of future disputes.

In this regards, it is suggested that the OPC form (alliances) with other contractors. Also a call is addressed to implement the concept of 'incentive contracts' to be employed with the formed alliances. This concept would reflect in many benefits to all parties like enhancing cooperation and understanding with sharing common set of goals. In addition, inter-relationship would take place in team's members reflecting good practice that can reduce conflict occurrence between the allied parities (Love *et al,* 2008).

9.7.3. Contractor involvement

Building healthy relationships among project parties by embracing new practices like 'partnership' and 'alliancing' can reduce conflicts. Specifically, involving the project parties in decisions related to the involved project can enhance the shared understanding. However, very few organisations put this involvement into practice. Involving contractors in decision making can improve construability of projects and build successful relationships based on trust and common set of gaols between partners.

As practiced in the OPC, the PWC contract deal with contractors with unfairness and much of confrontation. Therefore these attitudes must change towards contractors and they should be involved in decision-making processes and important meetings. This can highly enhance the success of building strong partnerships. CRC (2007) emphasised the Early Contractor Involvement (ECI) approach "*ECI is a new, two staged approach similar to a project alliance during the first stage and a Design and Construct contract during the second. It essentially involves putting additional resources into the crucial early planning phase in order to maximise the benefits and cost savings that can be achieved during construction. Its innovation comes from the selection process, the interaction between the clients; contractor and designer during stage one, and the strong relationship-based interaction between the parties.*" It is important to note that involvement of contractors

have to be taken in early stages of projects to effectively reflect good results on the implemented projects.

9.7.4. Adopting FIDIC contract

As mentioned by interviewed professionals, Adopting FIDIC contract can assess the suggested positive culture in terms of treating contractors and reacting to emerging disputes in very positive way. There is evidence from practice that FIDIC can work in more efficient way than the current Public Works Contract (PWC). As Ibn Humiad (2005) reported, the PWC which is the universal contract for all public projects have encountered a number of deficiencies that impact on the delivered projects. Also Zain Al-Abedien (1995) argued that the PWC have been condemned by contractors describing its unfairness and allocating risks on the side of contractors that can result in poor projects and weak relationships between the owners and contractors. In other words decisions are taken by the owners without involving the contractors. Dealing with disputes, the PWC stated that the Board of Grievances is the only body for dispute resolution while FIDIC gives more broadly alternatives for dispute resolution (Aleroan ,2008). Also, regarding risk allocation, the PWC allocates risks on the contractor side whereas FIDIC directs risks to both owners and contractors. Therefore replacing the current PWC by FIDIC can reduce misunderstanding and consequently provide better results for dispute avoidance.

9.7.5. Sensible risk Allocation

The complexity of construction projects needs sensible risk allocating strategy. This strategy is expected to reduce the occurrence of disputes. In this regard, the risk allocation concept needs to be addressed sensibly in the public construction context. Risks are associated with nearly every project and these risks must be shared by the project parties. The OPC have to maintain good risk allocation on the common projects that can raise the possibility for more understanding and trust among the involved parties. The CRC Report

(2007) pointed out to the deficiency in transferring risk to other parties in the construction contract which may cause delays and inadequate quality and ultimately to disputes.

9.7.6. Pro-active resolution steps

Organisations have to develop systems to detect signs of potential disputes and to quickly find solutions before escalating in forms of unresolved disputes. This depends on the experience of people involved and it is different from one organisation to another. An important technique that can help in this regard is revising critical records of previous projects concerning with conflicts and disputes. Also exchange experiences of these processes among different organisations can help to a great extent.

9.7.7. Rapid conflict prediction

Conflicts can show signs of disputes and if early predicted they can reduce the possibility of emerging disputes. Experiences of people involved and the effective communications maintained in culturally open organisations can facilitate avoiding techniques. Conflicts are needed to be tackled regularly and not ignored; this can help in eliminating conflicts in the future and in improving skills of conflict prediction among organisatios' members. Project parties have to work together in friendly attitudes to increase reactiveness of their teams for discovering any signs of conflicts.

9.7.8. Preconstruction conferences

In construction projects different organisations, different teams and different personnel work together. Preconstruction conferences are essentials to discuss details of the work ahead and address potential disagreements or disputes and how to solve them in case of occurrence. Although a clear understanding to the coming tasks cannot be accomplished in a preconstruction conference, it can participate in reducing conflicts and disputes

depending on experiences and qualification of the people involved and foreseeable situations.

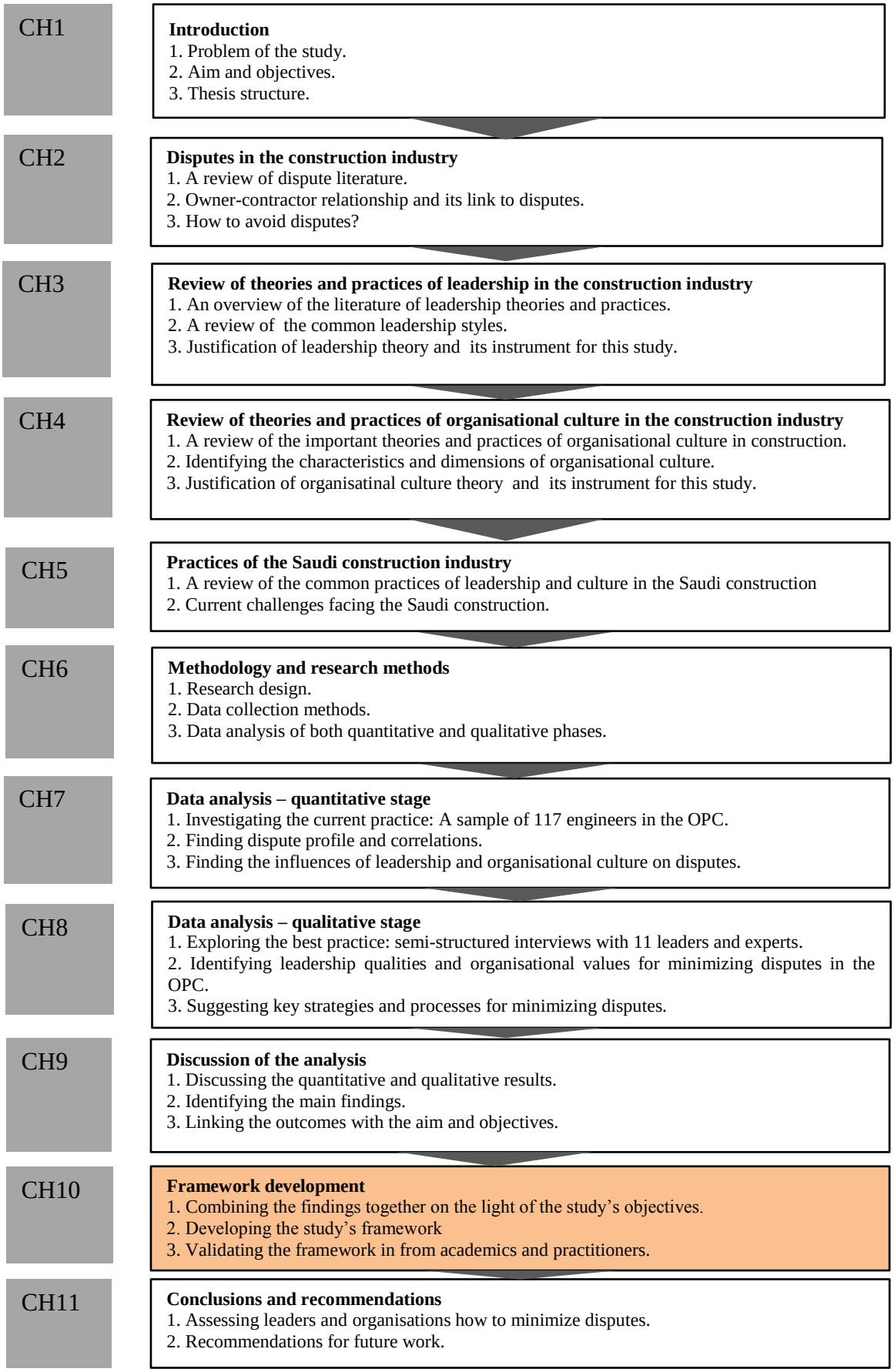
9.7.9. Third party role

Introducing a third-party in the owner-contractor relationship has valuable benefits to enhance reaching common goals and reduce disputes. As an independent party, the third-party can facilitate communications and effectively negotiates concerned issues in an amicable way. The professionalism and experience of the third party is important to enable the party to solve any conflict or disagreement between the project parties.

9.8. Summary

The study as a whole considers the current practice resulted from the quantitative stage and the best practice revealed in the qualitative stage; that is to form an integrated solution to the research problem. This chapter discusses the main finding of this study which has been revealed by the quantitative and qualitative stages. Key findings emerged from the discussion linking leadership, organisational culture and disputes. The most frequent dispute causes were identified to examine correlations with leadership style and organisational culture. Among the findings, it was found that transformational leadership is correlated to the reduction of disputes in the OPC. Regarding organisational culture, clan culture shows significant correlations to minimize disputes. The discussion will help in developing a framework to assess leaders and organisations in effectively minimizing disputes which will be presented in the next chapter.

10 Chapter ten - Framework development



10.1. Introduction

From the discussion in chapter 9, a number of significant findings have emerged. The dispute investigations reveal that, among 25 common dispute causes, 10 causes are identified as the most frequent causes for disputes in the OPC. Delay causes and causes related to (leadership and management) were the most frequent causes of disputes in the OPC. The prevailed organisational culture in this context is hierarchy while transactional is the dominant leadership style. These findings are not unexpected for organisations working in the government sector.

Moreover, for the best practice in the OPC, transformational leadership style and clan culture are proposed. Disputes are reduced with transformational leadership particularly with idealized transformational subscale. Transformational leadership has a significant association with clan culture meaning that change in both leadership and organisational culture can make differences in the levels of dispute frequency and seriousness. This change should be accompanied by effective strategies and techniques designed to avoid disputes.

Regarding development and improvement of organisational practices and work qualities and values, organisations need to have two key strategies. The first strategy deals with having continuous development for leaders and employees. The development strategy should involve all means related to personnel development. Knowledge and professionalism in public construction can help in identifying the effective and practical qualities, skills and behaviours for better outcomes. Secondly, the need for instilling a 'culture of continues improvement' in the owner organisation is essential to face challenges and difficulties and to instil harmony in behaviours and practices inside and outside organisations. This change have to be coupled with improvements in the current practices of implementing and delivering construction projects to the best practice to meeting project perfectness and dispute minimization. These strategies can act as a vehicle of effective

change adopted in the OPC. In this respect, a framework has been proposed in this research to enable the OPC to deal with disputes based on the findings from this study. Next section will discuss the development of this framework.

10.2. Framework development

Developing a reliable framework for minimization of disputes is not an easy process because of the nature of disputes and the fragmented construction industry. Ambiguity and unclear understanding of the practice in public construction is always resulted from the gap between academic researchers and practitioners. This also adds a particular difficulty to the framework development. Therefore the proposed framework is fundamentally developed based on the findings revealed from the current and best practice. To accomplish this, the findings are combined together through determining the main correlations between the research variables and consider the revealed suggestions and solutions out of the five stages conducted by this study as mentioned in chapter six. All of this leads ultimately to constructing reliable processes to form the framework aiming fundamentally to proactively minimize construction disputes in the OPC. It is believed that the framework can effectively assess leaders and organisations working in the public construction.

Framework, as defined in Business Dictionary is a "broad overview, outline, or skeleton of interlinked items which supports a particular approach to a specific objective, and serves as a guide that can be modified as required by adding or deleting items." The development of the proposed framework utilized the inductive reasoning approach as proposed by (Upham, 1841). A variety of framework methodologies were used in research; most of them use the 'bottom-up' approach which commonly start by investigating specific observations or incidents up to formulation of generalization. As Johnson (1993) suggests, in developing a framework, three phases should be considered namely: analysing the problem, designing abstractions to explain the suggested solution to the problem and testing the framework. It should be known in designing frameworks that "*it is designed to be refined. Good frameworks are usually the result of many design iterations and a lot of work involving sometimes structural changes*" (Opdyke and Johnson, 1990).

10.3. Theory building

Theory building which is employed in this study comes from the need to fill a gap in the field of study that reveals there was a theoretical problem (Shoemaker *et al.* 2004). Developing a framework can start by concepts or theories addressed for explaining phenomena in the study context (Rumelt 1994; Carlston 1994; Davis and Parker 1997). Therefore the theory embodied in the study's framework is interpreted through the investigated variables. This is shown by the way that these variables are organised and interrelated and how they contribute to the ultimate attained aim. To do these, key questions arisen prior to developing the framework: what is the aim behind developing the framework? What are the variables involved in this framework? What kind of relationships found between these variables? Why these relationships exist? The following sections answer these questions and show the development of the framework.

10.4. The framework

The information obtained in both the quantitative and qualitative data collection are used along with the information from literature to construct the integrative four-part framework. The findings are brought together through a number of processes undertaken in the framework development, these processes are:

1- Identifying the main disputes (Conceptualizing)
2- Determining the influence of leadership on disputes.
3- Determining the influence of organisational culture on disputes.
4- Defining the relationships between the main factors.
5- Selecting effective strategies and techniques to be embodied in this solution.

Ishikawa diagram of cause-effect shape is used to present the detailed processes and strategies to form the suggested framework as shown in Figure 10.1. The developed framework assesses the best practice for the OPC to minimize construction disputes and is believed to assist leaders and organisations. The main four parts are embodied in one framework to represent leadership, organisational culture, key organisational strategies and processes and dispute avoidance techniques.

This framework is designed to work as a tool for leaders and organisations to minimize disputes. The framework considers people issue and the needed strategies and techniques for avoiding disputes. By incorporating the four parts of the framework into organisations' practices, the organisations will have healthy relationships with contractors and can minimize the incidents of disagreements and misunderstanding among project parties.

However, the framework is developed based on the study's findings and need to be validated by academics and practitioners. Every new framework or model to be fully implemented needs time and also regular improvements. The four parts employed in the framework are discussed in the following sections.

10.4.1. Part one: Leadership

The findings of this study are consistent with literature regarding the influence of leadership on disputes. As discussed before, disputes can be significantly reduced by transformational leadership. Yet the current leadership in the OPC, i.e. transactional leadership, cannot meet this objective. Therefore the study suggests a change in the current leadership to more qualified and effective profile which is ultimately needed in the public context. Transformational leadership is highly recommended with a focus on the charismatic subscale. Figure 10.2 shows the subscales of transformational leadership (Avilo and Bass, 2004) that are employed in the framework. A brief of the leadership items as discussed in the previous chapters is illustrated in Figure 10.3.

10.4.2. Part two: Organisational culture

Previous studies confirmed the interplay between leadership and organisational culture. In this study this inter-related aspect is interpreted by a significant correlation between transformational leadership and clan culture. Clan organisational culture is suggested by the interviewed professionals that can work as a cultural environment for the OPC to build good relationships with all members and partners; this culture is characterised by good faith and common sets of goals. Clan culture is a positive and amicable culture that can reduce the potentiality of conflicts and disputes. The framework illustrates the main characteristics in the organisational culture change. Figure 10.4 and Figure 10.5 summarise the items of the proposed culture, i.e. clan culture as discussed in the previous chapters.

10.4.3. Part three: Key organisational strategies and processes

From combining the research parts, various strategies in organisations have emerged. Although, studies related to construction disputes have suggested specific strategies for dispute avoidant, some of these strategies are not applicable in the Saudi public context. Studying this context from different angles by utilizing the shared background of the interviewed participants, specific strategies for dispute avoidance are suggested based on the nature of the public context and suitability of these strategies. The framework highlights suggested organisational strategies and processes. Figure 10.6 presents the key strategies proposed by the framework.

10.4.4. Part four: Dispute Avoidance Techniques

The previous section presents the suggested strategies to be employed in organisations. These strategies are long-term processes and normally are related to the practices and behaviours which are espoused with other parties. However, in this section, day-to-day practices dealing with disputes are presented through selecting the proper techniques that are suitable to the context of public construction. Although disputes cannot be avoided

completely, they can be minimized and controlled. This minimization depends on the readiness of organisations to incorporate the effective techniques. The suggested techniques are designed mainly to avoid disputes meaning that they should be considered before the occurrence of disputes. They are not related to conflict management or dispute resolution, rather they concern about 'cure better than prevention'. They have to be employed early and even before implementing projects and have to be fostered and maintained by top management side. These techniques are shown in part four of the framework as shown in Figure 10.7.

10.4.5. Framework mechanism

As discussed above the framework consists of four main parts. These four parts are designed integratively to work together to minimize disputes. Importantly, the framework considers people issue and the technical side for providing effective provisions in avoiding disputes. By providing both issues, more focus is paid for building successful relationships inside the organisation and also with other organisations. Having healthy relationships can reduce minimize disputes with other organisations. Therefore the four parts serve this aim but a focus is needed on each part.

Leaders have the major role in in implementing the framework. By adopting transformational leadership style, they can have the needed qualities and skills to work effectively towards the framework's aim. They also have to ensure that the values of organisational culture are instilled in the organisation's practices. Clan culture is suggested because of its strength in building good relationships and real commitment to the organisational goals. The leaders' qualities have links with the organisational values like: cultural awareness with conflict-avoiding culture, openness with open inside and outside, team building with amicable culture, inter-personnel skills with strong relationships with leaders and dispute awareness with conflict avoiding culture.

The mechanism of the framework is mainly on relying on leadership and organisational culture for establishing and developing the needed strategies and techniques to minimize disputes. Organisational strategies and processes are related to the mentioned parts, i.e. leadership and organisational culture. The link is manifested in the role of leaders to foster the effective suggested strategies based on the need of the organisation. Fostering partnership and alliancing is of high importance for real organisational change. Without leadership efforts and employees' cooperation, adopting partnership cannot be achieved. Therefore cultural values like openness, flexibility, strong relationships (inside and outside) cohesion can enable clan culture to be good environment to have successful partnership with other parties. These strategies are also care, beside building relationships, about reducing the incidents of conflicts and disputes by adopting dispute awareness programs and pre-project planning. These two strategies can help to a great extent in predicting the potential conflicts and dispute and suggesting the required measures to avoid them in the implemented projects.

The mechanism also involves techniques for avoiding disputes that are required to be linked to the practices of the organisations. Similar to the strategies and processes, these techniques need to be fostered and supported by leaders in the first place. Therefore the leaders have to have dispute experience and cultural awareness through adopting effective styles before adopting disputes techniques in their organisations. Also clan culture with strong values can foster these techniques. For example risk allocation and contractor involvement is related to partnership strategy. Also these two techniques are related to reactiveness of leaders and effective communication skills with cultural values like openness, trust and cooperation. Effective tendering process and FIDIC contract adoption require more efforts from all leaders and organisation's members because they replace previous practice and considered as new techniques that need time to be fully applied.

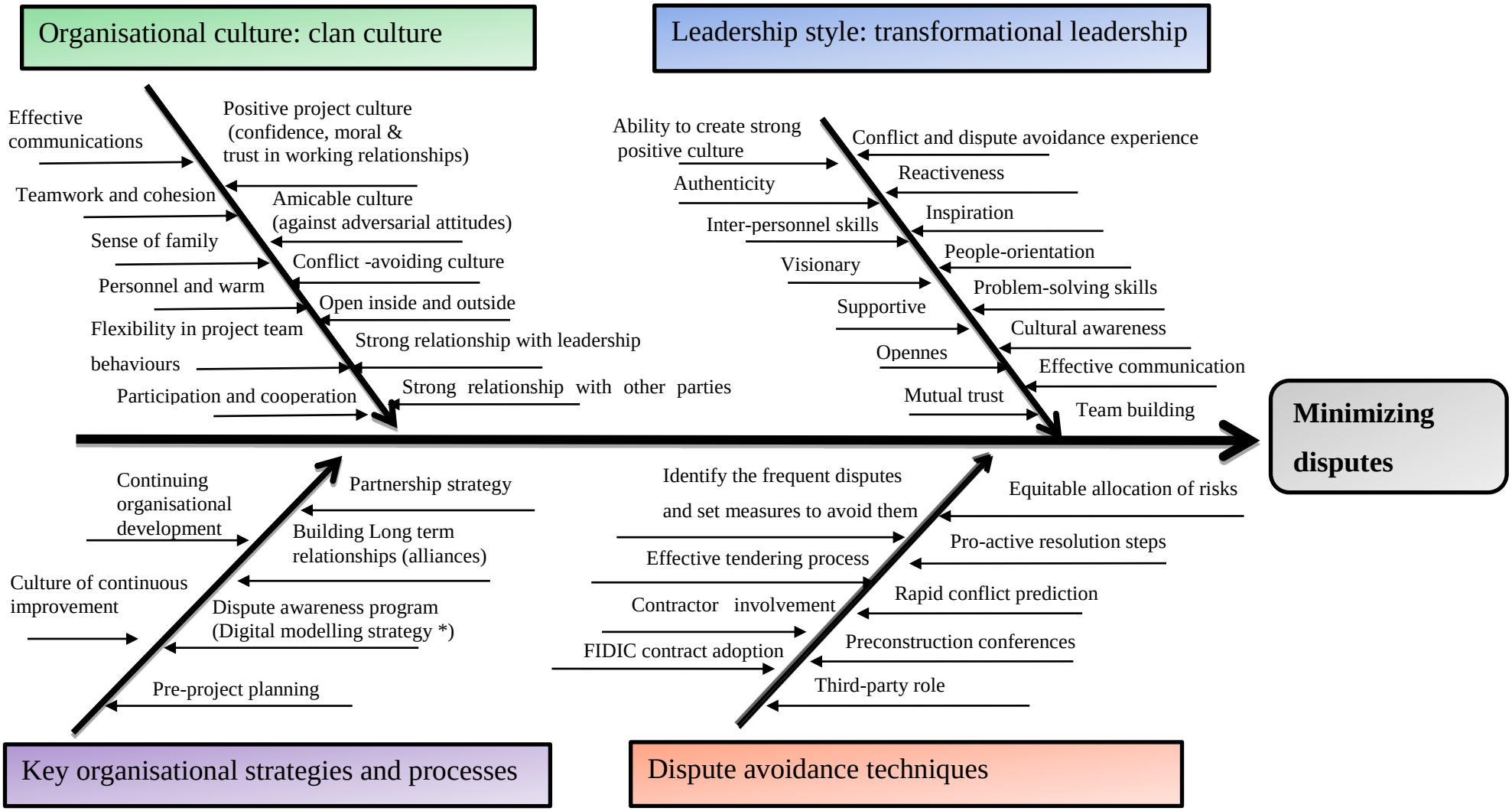


Figure 10.1: Framework for minimizing disputes in owner organisations of public construction

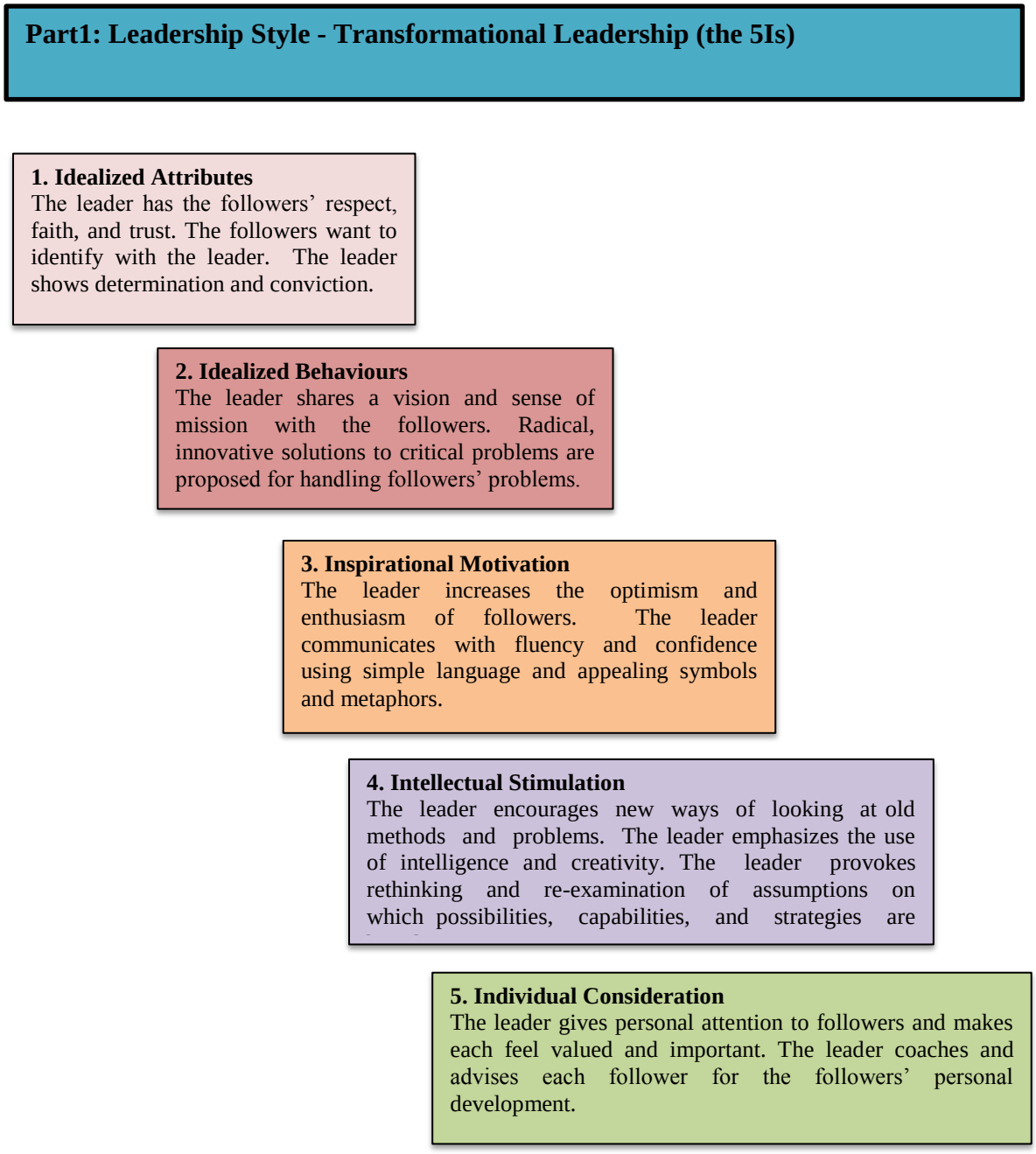


Figure 10.2: Transformational leadership subscales as incorporated in the leadership part of the framework, (Avolio and Bass,2004)

Figure 10.3: Brief descriptions of the leadership's items.

Part2: Organisational Culture – Clan Culture

- A place of "extended-family" that people inside share themselves.
- Concerns on the development of individuals in an organisation through individual commitments.
- Members have a higher level of organisational loyalty and commitment.
- Focuses on the characteristic development of team members through the team work and loyalty programs.
- Empowerment and involvement of team members in different activities of an organisation is given the centre stage.
- The work environment is given greater emphasis to increase the internal bonding and cooperation.
- Focuses on the maintenance of the internal environment of an organisation by demonstrating flexibility and rational concern towards personnel at different levels.
- Maintains good relationships inside the organisation and also with customers, partners and other organisations.

Figure 10.4: Clan culture as employed in the culture part of the framework, (Cameron and Quin, 2011)

Figure 10.5: Brief descriptions of the culture's items.

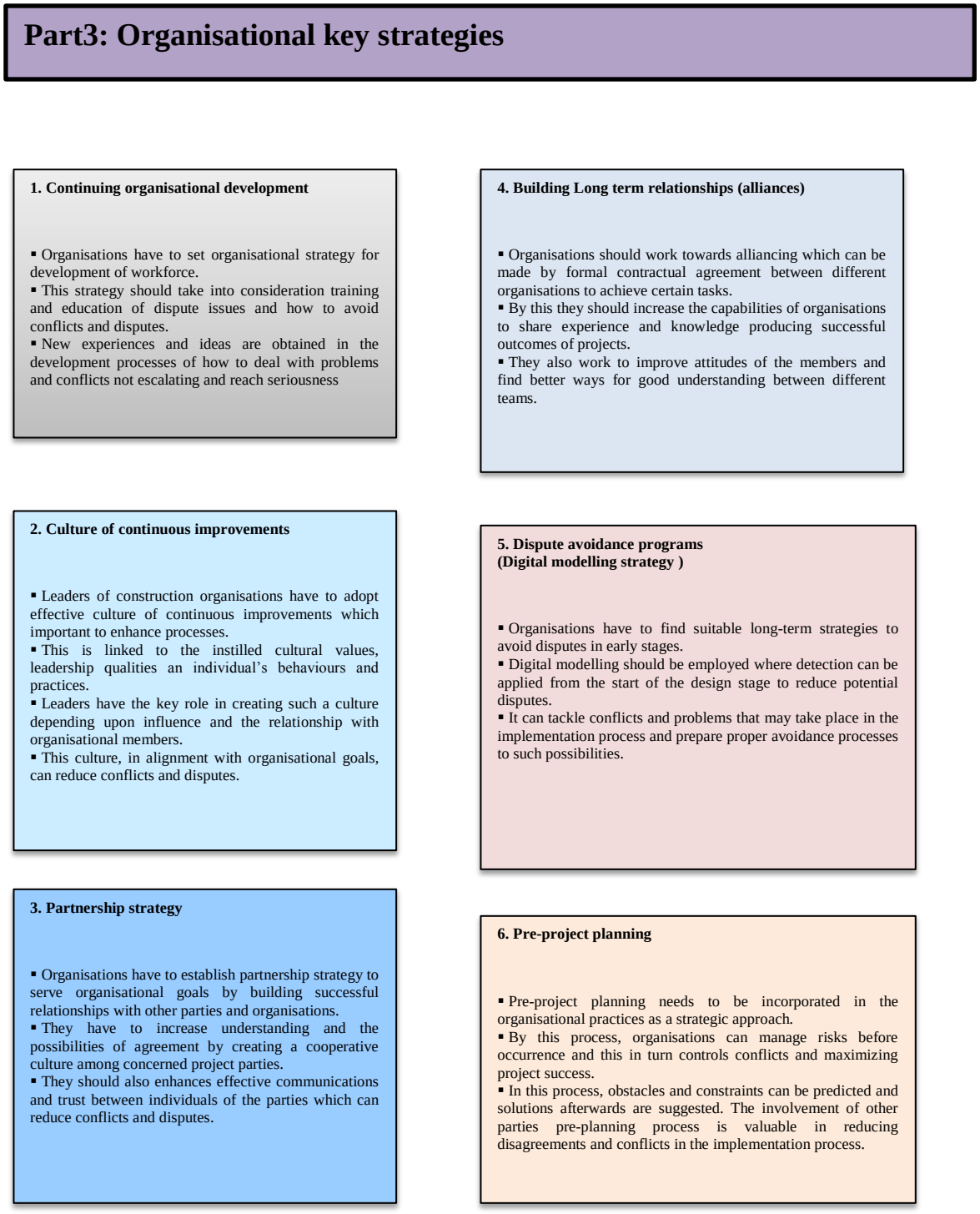


Figure 10.6: The key strategies proposed the framework.

Figure 10.7: The dispute avoidance techniques used in the framework.

10.5. Action plan for implementation of the framework

In the last section, the framework development was discussed. In this section the implementation of the proposed framework is discussed taking into account that the implementation of frameworks and models in cultural studies pass through the channel of change, i.e. leadership change and cultural change. Action plans can be used to implement the developed framework in organisations. Action plan is defined as "*A plan drawn up by individuals and collectives to guide action*" (McNiff and Whitehead, 2006). An action plan should be regarded as a general guideline and not strict procedures (McNiff and Whitehead, 2006). Developing action plan is related to recognising required resources, actions and their allocated time phases for implementing business strategies within organisations (Chen *et al.,* 2013). However, investigating the actual development of the action plan is beyond the scope of this research. This study suggests that the implementation of the proposed framework in organisations can be considered in the medium term (three to five years) as reported by "Construction 2025" report of the action plans for the UK construction industry to achieve the drawn goals (Construction-2025,2013; Vokes *et al.*,2013). Although differences are found between Saudi and UK public construction, the recurring issues and problems are similar in both contexts. This makes logic because the framework is highly related to cultural and social change represented in behaviours, values and practices that are needed to be improved in the owner organisations to prepare an environment for minimizing disputes.

This framework is developed to minimize disputes through the improvement of the current practices and behaviours to the best practice. Suggesting a perfect solution to the problem of dispute in construction organisations is a difficult task. This can be referred to the nature and complexity of construction projects. Therefore this framework works as a mechanism to deal with the complexity of projects take place in the OPC. It combines people issues (leadership style and organisational culture) and the technical issues (strategies and techniques). The framework is designed to be implemented fully,

i.e. partial implementation of one part does not achieve the attained objectives. In other words if the organisation employ only strategies and dispute techniques without applying the other parts in its practices to reduce the number of disputes, the framework is most likely to fail.

The application of this framework in the implemented projects needs to be re-evaluated in terms of achieving the project's aim and the level of dispute reached at the end of the project. Although no 'measures' for dispute minimization are found in dispute literature, this framework will help minimizing disputes related to leadership and culture. The causes of these disputes form about 25% of the total number of disputes identified in this study. Therefore minimizing the number of dispute causes in future projects by 25% is considered as an achievement for all project parties. The benefits of this reduction are also extended to create strong relationships and more understanding. A proposed action plan for the proposed framework is presented in Figure 10.8. A scenario is drawn for the objective of this framework, i.e. minimizing disputes in the targeted organisations. It is started by questioning if the organisation is satisfied with the current level of dispute or develop to the other stages: leadership style, organisational culture, and organisational strategies and disputes techniques. In the following sections these stages are highlighted.

10.5.1. Action plan - leadership perspective

To implement leadership change, leaders of the OPC have to change their styles to an effective style, i.e. transformational leadership. However, instant replacement of the current style is not advised. It is rather advised to firstly re-evaluate the existing style through finding weaknesses. Then leaders should consistently improve their qualities and skills to match transformational style. The transformation to another style needs time and patience. The leaders' priority should be directed to determine the culture of the organisation. This aim is executed by utilizing strategic decisions.

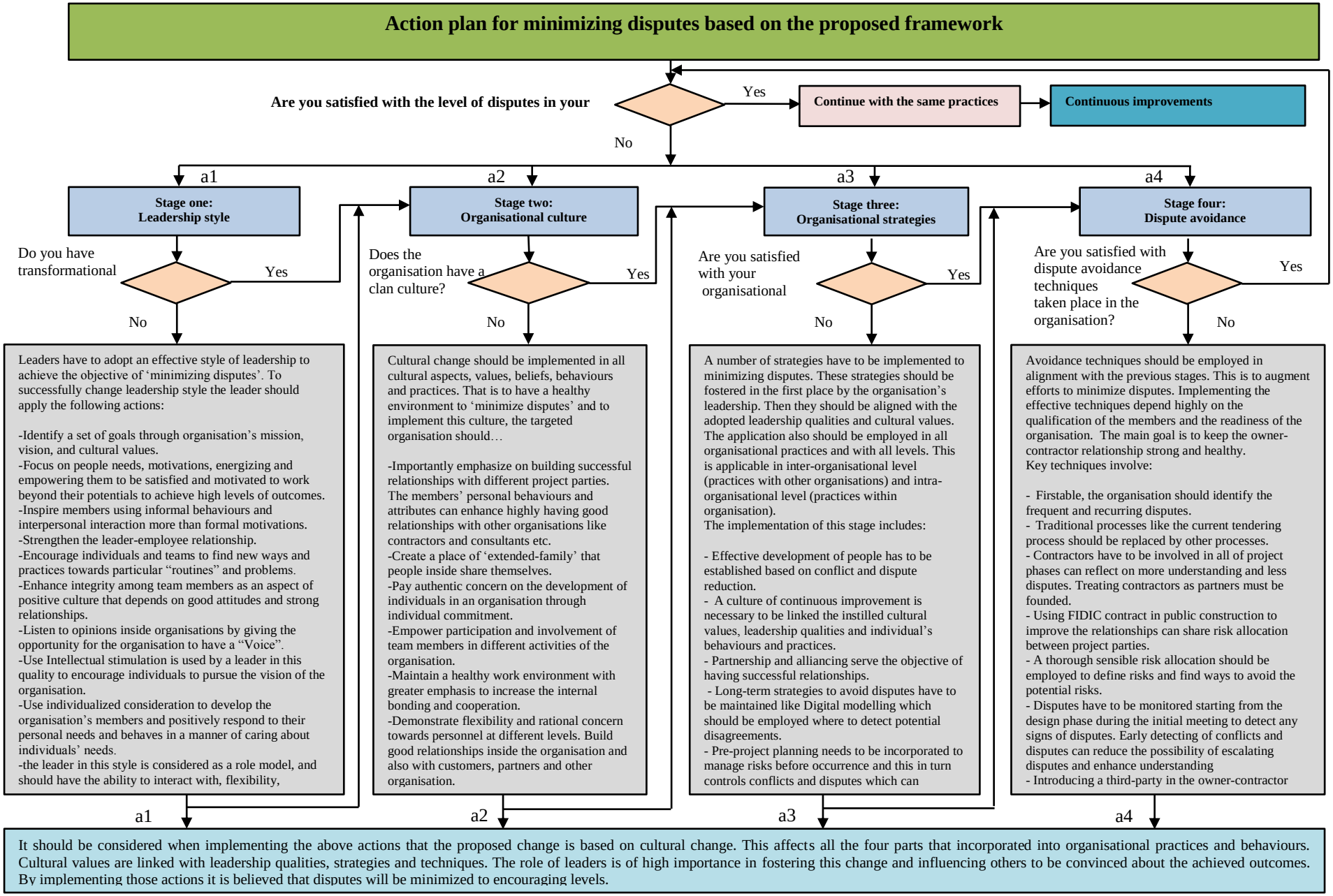


Figure 10.9: Action plan for the framework implementation

culture and the manners of people behaviours. If the leaders do not make strategic steps, organisations would maintain previous practices and do previous mistakes. They should target the long-term goals to the best practice; maintaining the minimum levels of disputes to achieve the main attained organisational goals. As indicated in Figure 10.8, importantly, transformational leaders have to care more about their employees and enhance strong personal relationships with them and this in turn is reflected in commitment and loyalty toward the organisation. With this style of leadership, organisation's members do have a feeling of motivation and, in most cases, can do more than what is required. Morality and personnel skills are the key values in this style.

The leaders should identify the key qualities and values to lead this change. Values like openness and trust are of great importance to build a strong positive culture. Interpersonal relationship among teams and individuals can make a real difference. Leaders have to have the required knowledge and experience, how to avoid conflicts and disputes. Skills like proactivity, problem solving and well behaviours with other parties are needed.

10.5.2. Action plan - organisational cultural perspective

The framework is intended to suggest cultural change for minimizing disputes in the OPC. This change has to be incorporated in the practices and traits of the organisations and should be embraced and translated into collective efforts of leaders, key managers and all of the organisation's members. The suggested clan culture should concern mainly by the emotional factor that shapes the organisation like 'extended family' and collaborative values that manifest the relationships between organisation's members. The culture has to employ flexibility and long-term relationships. With respect to leadership, they are considered as mentors and influencers. People are to be held together and associate with high levels of cohesion and loyalty toward organisations with a focus on internal values and the concern is highly on people.

Leaders, in this type of culture, i.e. clan culture, foster the core values aligned with the attained organisational goals and tend to change cultures toward their visionary line, see

Figure 10.8. They are not confined within organisational cultural limits. They utilize their skills in terms of inspirational motivation and individualized consideration which are associated with their vision. The success of organisations with the cultural change depends on the effectiveness of leadership and the organisational reaction to this change. Leaders of clan cultures use their inspirational motivations to direct organisation's members to their vision of future and make sure of setting common values and goals for the whole organisation.

10.5.3. Action plan - strategic and technical perspective

As mentioned above, the strategic and technical part of the framework is an integrative mechanism to leadership and culture. Employing the suggested strategies and techniques are of high importance to minimize disputes. Actions to employ the strategies and techniques, as indicated in Figure 10.8, should be fostered, in the first place, by the leaders. They have to make sure of the implementation in all organisational levels and the members are convinced enough with their effectiveness to meet organisational strategic objectives. An obstacle to this can be found in traditional approaches taken by members to accomplish tasks in the current situation. When the members are assured of the resulting outcomes, they can embrace the new strategies and techniques.

By giving a highlighted description of the above action plan, it should be noticed that it works as a guideline for the proposed framework to support its full implementation. The targeted organisations are expected to change to better levels in terms of leadership and culture to have improved skills and practices. This is reflected in minimizing disputes in the coming projects and also in stronger relationships with the involved parties. Yet the framework is not providing a final answer to the problem of dispute, but it relies upon collective efforts among leaders, organisations 'members and all partners.

10.6. Framework Validation

The previous sections discussed the development of the study's framework. This section discusses the framework validation process. The validation process is of importance to reflect how the proposed framework represents the real world (Pidd, 2009). Therefore, to determine whether the framework is practical in the real world, it should be judged by academics and practitioners. Social and historic evidence indicates that the acceptance of a model or a framework comes from the involved academics and experts in the same field (Pidd, 2009).

The concept of validation stands as a judgment made by a person or body (Church, 1983), while academically, it means determining whether the objectives of the specific research have been achieved (Bock, 2001). A number of researchers consider validity as generalizability of findings to a larger population (Pedhazur and Schmelkin, 1991). This is due to the desire among researchers to generalise findings beyond the investigated sample (Schwab, 1999). The framework proposed by the current study is validated through an online survey sent to the respondents by e-mail. While no specific method is available for validating a proposed framework, the best way is to check its validity in the real world 'field practice' (Pyett, 2003).

10.6.1. The validation process

The validation process tests the framework based on the views of the respondents on its practicality and effectiveness. Practicality is the aspect of applying suggested proposals into practice (Wang, 2005), while effectiveness can be described as the degree to which a specific result is achieved. Therefore, the validation process aims to seek evaluation from experts regarding the practicality and effectiveness of the proposed framework in public construction.

To conduct framework validation, a short survey was designed which included:

1. A brief about the proposed framework

2. A request to evaluate the framework
3. A list of questions about the framework

The survey questions were designed to be simple with respect to the practicality and effectiveness of the framework. The aim was to test its applicability in practice and that it has the theoretical basis. Using Survey Monkey, the survey includes two parts. The first part consists of general information: name, job position, experience and organisational field. The second part includes the validation questions, which consists of two sections:

- Questions to assess the practicality and effectiveness of the framework.
- Open-ended questions regarding the opinions of the respondents about advantages, weaknesses and possible improvements for the framework.

The targeted experts for the validation process were academics who have dealt with disputes in research and professionals who involved with disputes with other parties in practice. It was difficult to reach large number of experts due to the scarcity of experts in this field. Based on experience these experts can judge on the proposed framework. The survey was sent to 33 academics and practitioners, and only 12 responses were received. These participants were different from those who were involved in the previous stages of this research. The obtained data was analysed using SPSS software. The survey employed a five-point Likert-scale ranging from 1 (strongly disagree) to 5 (strongly agree) to rank the respondents' answers. Appendix (C) illustrates the framework validation questionnaire.

A number of twelve participants were involved in the framework validation process: seven practitioners in the field of public construction and five academics from the Saudi universities as shown in Table 10.1. This diversity in the participants' background can enhance the testing quality of the validated framework. It was decided to target those in the management level who got better awareness of the practices and issues considered by the framework. The academics have the background about disputes in public construction and their views were important to add judgment to the framework. The

participated academics work in construction management in the Saudi universities and also have continuous relationships with the public construction in terms of consultancies and joint-research.

Table 10.1: Participants' information in the framework validation.

Expert no.	Participant's field	Position	Experience (Years)
1	Practitioner	Project manager	14
2	Practitioner	Project manager	10
3	Practitioner	Department manger	27
4	Practitioner	Private consultant	32
5	Practitioner	Arbitrator	19
6	Practitioner	Arbitrator	23
7	Practitioner	Department manager	33
8	Academic	Reader (CM)	20
9	Academic	Lecturer(CM)	22
10	Academic	Researcher(CM)	12
11	Academic	Lecturer(CM)	18
12	Academic	Senior Lecturer (CM)	28

CM: Construction Management

10.6.2. Analysis of the validation data

Practicality of the framework

The respondents were asked to rate the practicality of the framework by rating the four parts. The assigned rate was 1 (strongly disagree) and 5 (strongly agree). The results regarding the practicality of the framework were encouraging. The mean values show the degree of practicality or effectiveness of the tested part. Skewness measures are used to reflect the symmetry of the distribution as shown in Figure 10.11, "Negative skewness indicates a distribution with an asymmetric tail extending towards more negative values" (Microsoft, 1996). This means that negative values give a tendency of the distribution towards practicality or effectiveness, and vice versa. In other words, if the respondents select higher scores like 4 or 5 for practicality or effectiveness, this leads to negative values for skewness and that can be interpreted for more satisfaction with the framework. Whereas, if they chose 1 or 2, positive values of skewness are punched up towards the left tail meaning weaknesses of practicality and effectiveness are reported.

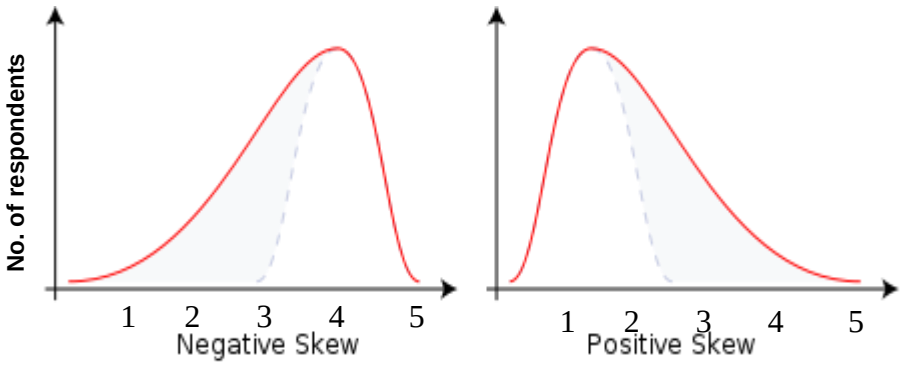


Figure 10.11: Skewness measures

As shown in Table 10.2, the mean value M for leadership part is 4.25 while M=4.17 for organisational culture. Whereas, organisational strategies, part 3, has 3.92 and for dispute techniques part is 3.75. These results show that the participants see the framework practical since the minimum mean obtained is 3.75 out of 5. It seems also that leadership part was sought to be more practical than the other parts. This gives evidence of the practicality of this framework.

Table 10.2: Practicality of the framework parts.

Framework part	N		Mean M	Std. Dev.	Skewness
	Valid	Missing			
Leadership	12	0	4.2500	.96531	-.591
Organisational culture	12	0	4.1667	.93744	-.383
Organisational strategies and processes	12	0	3.9167	1.24011	-.501
Dispute avoidance techniques	12	1	3.7500	1.13818	-.305

Effectiveness of the framework

Apart from the practicality, the respondents also were asked to rate the effectiveness of every part of the framework. As indicated in

Table **10.3**, the mean values are between 4.1 for leadership and 3.67 for dispute techniques. Leadership was also chosen as more effective, while the general strategies were less effective.

Table 10.3: Effectiveness of the framework

Framework part	N		Mean	Std. Dev.	Skewness
	Valid	Missing			
Leadership	12	0	4.0833	.99620	-.854
Organisational culture	12	0	4.0000	1.04447	-.574
Organisational strategies and processes	12	0	3.8333	.93744	-.412
Dispute avoidance techniques	12	0	3.6667	1.07309	-.255

Practicality and effectiveness of the entire Framework

To strengthen the validity test of the framework, all of the respondents were asked to rate the whole framework in terms of practicality and effectiveness. Regarding practicality, the mean was 4.0, which represents good evidence as it shows that the experts are satisfied with the practicality of the entire framework (see Table 10.4).The respondents also agreed concerning the effectiveness of the framework with a mean of 3.83. The skewness values indicate that the mass of the distribution show tendencies toward the practicality and effectiveness. These answers are considered as positive opinions of practitioners and academics concerning the framework as a whole.

Table 10.4: Practicality and effectiveness of the whole framework.

Practicality and effectiveness	N		Mean	Std. Dev.	Skewness
	Valid	Missing			
Practicality	12	0	4.0000	.95346	-.755
Effectiveness	12	0	3.8333	.83485	-.771

The open-ended questions in the framework validation

This part was designed to obtain feedback from the practitioners and academics concerning the practicality and effectiveness of the tested framework. Out of the twelve

questionnaires received, ten completed responses were received. Most of the feedback addressed the following issues:

- Regarding the practicality and effectiveness of the framework, it is very good, but I think it needs time to be adopted in the construction context.
- The framework is more ‘general’ than ‘specific’.
- I think the leadership part is the most challenging part since it is a key issue in the construction industry. If we have these transformational characteristics with our leaders, not only will disputes be affected but the project’s whole environment will be changed.
- Organisational culture is weak in the Saudi context, so more focus should be on this part.
- There will be resistance within the organisations. How can this kind of resistance be overcome?
- The framework is very practical. However, applying it in Saudi public construction is quite challenging. The people involved in this process must be educated and trained very well before the application. They should be educated about how these parts are working and how they influence disputes. People and projects are quite complicated.
- My opinion about this framework is that it is direct, simple and achievable.
- This framework needs time and more effort to work effectively in public construction.
- I think this framework is a good step to understand how to prevent disputes in the construction industry. However, it should be understood that avoiding disputes is not an easy task. It first needs collaboration from the people involved in a project and a real desire to work together in a very open atmosphere. Then this framework can be applied successfully with this encouraging environment.
- Part 1 and part 2 in the framework are vital in making change in the current culture found in construction, but full implementation needs more effort than usual to make changes. Parts 3 and 4 are less important in avoiding disputes and needs more clarification.

Response to the feedback

The above comments about the framework provided valuable feedback, which has been considered by the research. There was a focus on the importance of leadership in the framework to minimize disputes. Weaknesses were mentioned regarding the generality of the main parts of the framework, which were considered to incorporate the main qualities and values and of the main constructs rather than going into detail. The answer to this comment is that applying such a framework in the current practice of the OPC is considered as a new tool. The current practice is strongly related to the rooted cultural values built in organisations over long time. Changing and improving those values is not an easy task and should start from general stages to more detailed ones. Moreover, the framework focuses on key values and qualities needed for the owner organisations and with time they can be improved to include more specific components. The action plan illustrated in Figure 10.8 shows the main stages to implement the framework and details of every stage. A comment also mentioned about the resistance of individuals and organisations which need huge efforts to implement such a framework. In fact, in developing the framework, a consideration was paid to the difficulty accompanied by first period of its implementation and the transformation of the organisation to upper levels. Therefore, leaders should be aware of the expected resistance and need to deal with it in proper ways. This framework needs preparation based on shared efforts by leaders and organisations' members to reach readiness in which the framework's parts incorporate perfectly in organisations' practices and people behaviours. This readiness is expected to be reached in the medium term (three to five years) as discussed in section (10.5). Fast change of leadership and organisational culture can bring worse results. Finally, parts 3 and 4 are important as an integrated part in forming a reliable framework to avoid disputes. Working only with leadership and culture without incorporating effective strategies and techniques to minimize disputes can weaken the framework as a whole. All of the four parts are interrelated with each other for instance developing a partnership strategy should be aligned with cultural and leadership values like openness, personal skills and team building.

The feedback given can be divided into three types. The first type focuses on raising awareness about disputes and the severe consequences of disputes in projects and the relationships among different parties. With lack of awareness, the practicality of any framework or solution to disputes will be a waste of time. Therefore, before setting plans to implement such a framework, awareness should be led by experts to enable people to understand the seriousness and severity of disputes.

Secondly, organisations which will adopt the framework should be monitored to note any changes that take place after the application. Challenges and obstacles facing the implementation should also be reported to enable better adoption by other organisations. It may be expected that the framework will be difficult for people and organisations in the first times, but, with time, the benefits can be very obvious. In addition, resistance to change is expected, and more efforts have to be made to convince people concerning the long-term results.

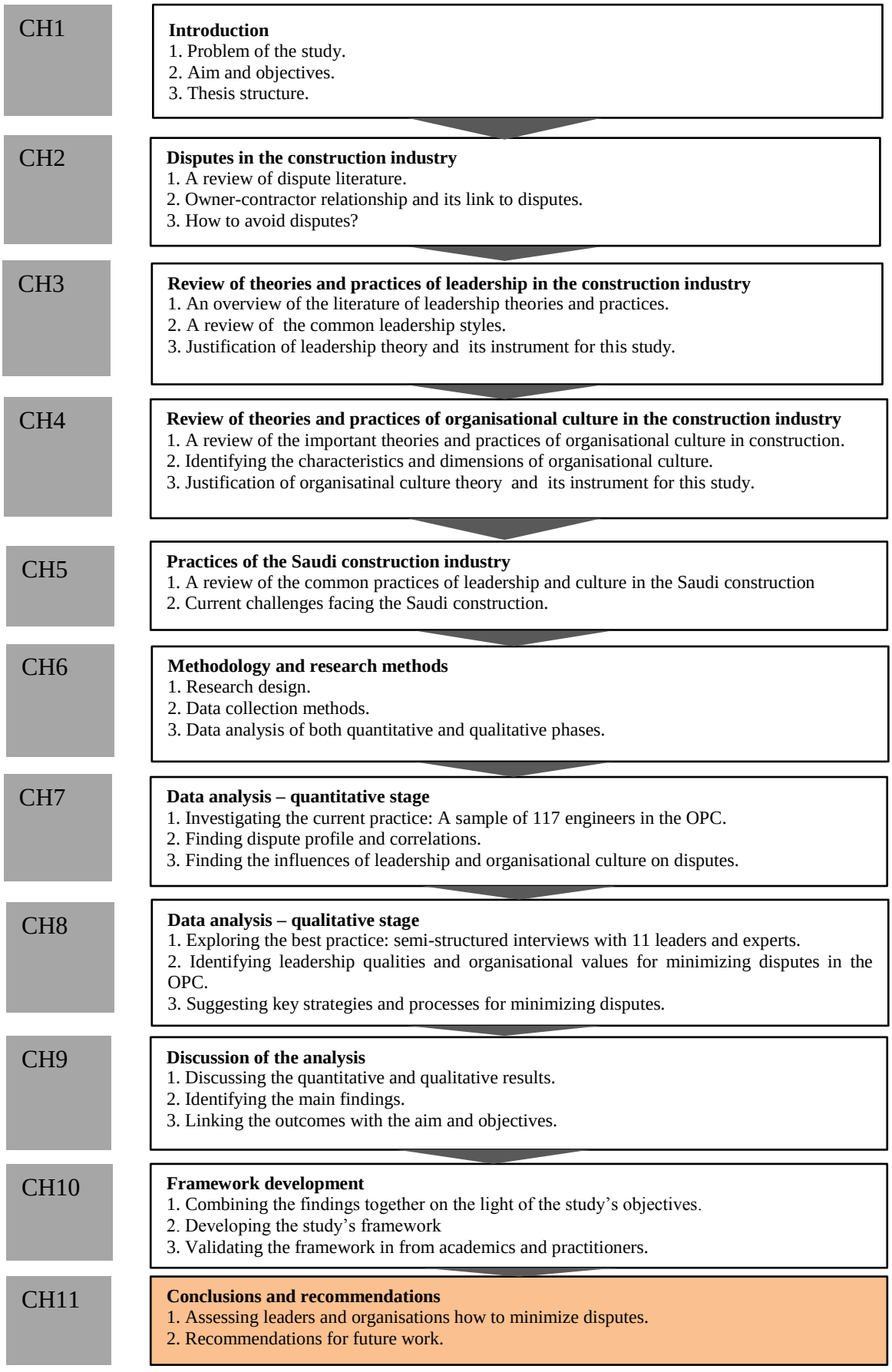
Thirdly, leadership was mentioned as a vital role in improving the framework. Professional and qualified leaders can bring successful implementation. Therefore, attention has to be paid on the leadership part which is exhibited also in fostering effective mechanism of minimizing disputes as indicated in sections (8.3) and (9.5). The success of the framework application depends highly on the ability of leaders to change the organisations. This can be accomplished by embracing the leadership qualities encountered in the framework. In addition, reports from qualified and experienced leaders can be added to the monitoring process to evaluate leadership practices and their influence on people and organisations. This can be achieved by testing the framework implementation, every six months, and noting the achieved improvement and how people are accommodated to the application. Importantly, the results about dispute reduction in the practices of the OPC have to be revised through recording the number of disputes in every implemented project and study the recurring causes and why they have emerged.

10.7. Summary

The developed framework serves as a guide that helps leaders and organisations in the OPC for the best practice to minimize construction disputes. The framework consists of four parts representing change in leadership, organisational culture, main strategies and processes and dispute avoidance techniques. This framework needs change to take place in leadership and culture to be applied. The implementations of the framework and action plans for the four parts were discussed to acknowledge leaders and key members how it works to achieve the objectives.

The framework was validated for practicality and effectiveness in public construction sector. In this validity process, a number of academics and practitioners answered questions about the framework, revealing important feedback to enhance and strengthen this reliable framework. Encouraging results were revealed indicating that this framework is practical and effective in public construction. The next chapter sets the conclusions and recommendations from this study.

11 Chapter eleven - Conclusions and recommendations



11.1. Introduction

The main aim of this research was to develop a reliable framework to minimize disputes in public construction. This aim has been achieved through the stages demonstrated in detail throughout this thesis. This chapter presents a summary of the research. The main findings are discussed with the intention of presenting the contributions to knowledge. The main motivation of this study is to draw the attention of academics and practitioners working in the construction industry to the importance of leadership and culture when dealing with disputes. This is achieved by developing the framework to minimize disputes in public construction

11.2. Meeting the research aim and objectives

As previously mentioned throughout the study, the aim of the research was to develop a reliable and valid framework to minimize disputes in public construction. To archive this aim, the study was developed through five main stages:

1- The literature review
2- The survey to investigate current practice
3- The interviews to explore the best practice
4- Framework development
5- Framework validation

Data collection methods were utilized with engineers working in public construction using a survey, experts working in public construction using interviews and practitioners and academics for the framework validation. The mixed-method approach used has strengthened the empiricism of this research by building a theory through investigating and exploring the practices and experiences of the involved participants. Therefore, the main objectives of this research were as follows:

I. To investigate the current practice of dealing with disputes, leadership and organisational culture in owner organisations. This was achieved by determining the most frequent disputes as one part of this stage. The organisational culture profile and leadership style were identified in the owner organisations to visualize the main cultural characteristics (main survey).

II. To examine the correlations among leadership, organisational culture and disputes to investigate how leadership and organisational culture influence disputes. Studying these influences will lead to the development of the framework (main survey).

III. To explore the best practice in the OPC of leadership and organisational culture by identifying the key characteristics of both constructs, which can enable leaders and organisations to minimize dispute (semi-structured interviews).

IV. To develop a reliable framework to assist leaders and organisations to minimize disputes based on objectives I, II and III. The framework is based on current practice and best practice in owner public organisations. This reveals that this framework may not by suitable for contractor or consultant organisations or other construction organisations.

V. To validate the developed framework with respect to practicality and effectiveness by conducting a validation process with academics and professional practitioners.

11.2.1. Findings from the literature review

The literature review aimed at obtaining a solid background on the area investigated. Because three main areas are combined in the study, literature from each area was

reviewed. The study began by presenting literature concerning construction disputes (chapter two), leadership in the construction industry (chapter three) and organisational culture in the construction industry (chapter four). Finally, a review of Saudi construction was presented to understand the context of the study.

By reviewing literature concerning construction disputes, one can find that the majority of studies covered the causes of disputes and Alternative Dispute Resolution (ADR). However, the main roots and sources responsible for the occurrence of disputes were rarely investigated. Accordingly, to fill this gap, researchers need to gain a better understanding and thus bring effective solutions to the problem of disputes rather than focusing on frequent or interface causes of disputes.

Literature of leadership in construction revealed that, although leadership is considered as a critical success factor in the turbulent and complex construction context, few studies have dealt with this issue. Less attention to the matter is paid in the construction literature to the significance of leadership. The majority of studies have reported a gap in the current leadership. Leadership experts called for change in the current project leadership to meet future challenges. It has been reported that weak leadership cannot cope with these challenges. Since the construction industry has different characteristics from other businesses, project leadership must be more effective and more qualified. The literature also revealed that several leadership styles have been investigated in terms of effectiveness and correlations to factors such as performance, employee satisfaction, project success and other success factors. A significant number of studies emphasised that leadership must express a better understanding of culture and people rather than focusing on tasks and organisational achievements. The full range theory of leadership has been widely researched and represented as a validated model for leadership. The main leadership styles used in the full range theory, transformational, transactional and Laissez-faire, have been identified by many researchers as reflecting the common leadership styles employed in project leadership.

On the other hand, by reviewing literature of organisational culture in the construction industry, the correlations of organisational culture with various factors have been investigated, such as performance and organisational effectiveness. In addition, organisational culture profiles have been identified in many construction environments, yet very few profiles can be found in developing countries, where challenges and disputes are commonly found. A gap can be found in the correlations with disputes and conflicts and how the combination of leadership and organisational culture can affect the incidences of disputes.

Literature of the Saudi construction industry revealed that this country, with the largest oil reserves in the world, responsible for one-tenth of the world's supply, is witnessing a building boom in private and public construction. The government greatly supports the massive public construction of multi-billion projects such as economic cities, new universities and new railways, with a rapid growth rate of 16.5% and a large budget; in 2013 alone, £47 billion from the national budget was allocated to public construction. However, this sector experiences conflicts, delays and more incidents of disputes. In addition, the fragmentation and adversarial attitudes that accompany this continuously rapid growth have brought more serious risks. Furthermore, project management practices use traditional ways that are not keeping up with the changes resulting from international and local influences. Leaders and practitioners working in this sector must realize how to improve practices to deliver better outcomes.

11.2.2. Findings from the survey

The investigation of the current practice of owner organisations in public construction OPC have revealed that most frequent disputes were found in the categories of contractor delays and leadership practices. The leadership practices involved: lack of team spirit, poor communication and inadequate supervision. In this manner, the study identified the ten most frequent types of disputes for the purpose of addressing effective avoidance procedures. Transactional leadership was identified as the prevailing style in

the OPC. This was expected since this sector is greatly supported by the government and its influence in terms of practices and policies. Transactional leaders normally focus on control and power to achieve the tasks and work required to be perfectly performed. They are more task-oriented than people-oriented.

In addition, hierarchical culture was found to be the dominant culture in these organisations. This kind of culture prevails commonly in government organisations; it features control and formality, and leaders use their power and authority to influence organisations' members. Also the possibility of conflicts and disputes is associated with hierarchical culture due to the weakness of people issues and internal focus.

Positive associations were found between transformational and clan culture, while no correlation was found with laissez-faire leadership. Transformational leadership associations were more significant than transactional associations. Conversely, there were negative correlations with the current hierarchical culture. The positive associations reveal more tendencies towards people issues and interpersonal relationships in leadership practices. There is a need for change in the current practices of leadership and organisational culture to meet challenges and to maintain healthy relationships with project parties.

Regarding the influence on disputes, transformational leadership style was found to minimize disputes due to the apparent significant associations with frequent disputes such as late payments, lack of team spirit, poor management, poor communication and unrealistic tendering. In addition, clan culture was significantly associated with disputes, lack of team spirit, poor management, delays and slow responses of contractors. This implies the effectiveness of maintaining clan culture in minimizing disputes. These findings were significant in building thoughts about the influence of leadership and organisational culture on disputes, which was important in developing the suggested framework.

11.2.3. Findings from the interviews

The qualitative part was conducted to meet objective III through exploring the best practice to identify key characteristics for both leadership and organisational culture and to determine effective strategies and processes to avoid disputes. Therefore, most of the experts preferred clan culture as the best choice to be adopted by OPC so that a family-sense and interpersonal relations are maintained by all of the organisation's members. In addition, openness, cooperation, friendly attitudes and a conflict-resolving culture were frequently mentioned. The importance of adopting a friendly culture with strong relationships between leaders and members to minimize disputes was revealed. This will significantly affect relationships with other organisations and parties.

There was agreement on the role of leadership in minimising disputes among leaders, arbitrators and experts. However, opinions were slightly different concerning the key qualities and skills needed for effective leadership due to the role of each participant in the organisation. Mutual trust, openness, people orientation and effective communication skills were among the key qualities needed in leaders. Regarding dispute skills, experience in disputes, problem solving skills, cultural awareness and relationship building skills were also of importance. For effective leaders to work to minimize disputes with other parties, continuous training and education regarding the needed qualifications should be greatly considered.

To provide a reliable framework for minimising disputes, changes in leadership and organisational culture are not enough. Effective strategies and processes in avoiding disputes must be

incorporated. Although several strategies and processes were mentioned in the literature to avoid disputes, the purpose of the qualitative phase was to discuss the effective and suitable processes that can be incorporated in the owner organisations. In this regard, it was obvious that owner-contractor relationships have clear weaknesses and need prompt change. Therefore, the interviewed participants emphasised partnership and alliancing to involve contractors and key parties in the contracting process. In addition, an effective tendering process was frequently mentioned concerning qualified and professional contractors. Dispute awareness programs and risk allocation were suggested for deployment in dispute avoidance strategies.

11.2.4. Framework development and validation

Developing a framework for minimising disputes in owner organisations meets objective four. Therefore, the five stages mentioned in section (11.2) have led ultimately to the development to the framework. All of the results and findings were combined by determining the main correlations between the research variables. The main purpose of this framework is to assist leaders and organisations to minimize disputes. It consisted of four parts: leadership, organisational culture, key organisational strategies and dispute avoidance techniques.

The framework takes into consideration the nature of the construction industry and the personal relationships involved. Effective transformational leadership is proposed to raise cultural and dispute awareness through possessing key qualities and skills. People orientation, openness, mutual trust and interpersonal skills are among the important qualities. Organisational culture forms the second part through adopting a clan culture by having a family-sense culture that fight (adversarial) in intra and inter-organisational relationships. An open, friendly, positive and supportive culture is highly required.

The first and second parts of the framework are related mainly with the people involved, while the third and fourth parts are more concerned with strategies and processes. The third part includes the key strategies and processes suggested to minimize disputes. They involve partnership and alliances as the main strategies to form healthy and strong relationships with the project parties. The continuous development of

leaders and members is significantly needed to meet the changes occurring in the industry as a whole. In addition, dispute awareness programs must be incorporated at the organisational level. The fourth part includes the main dispute avoidance techniques that are suitable for public construction. Examples of these techniques are risk allocation, contractor involvement and rapid conflict resolution.

11.3. Contribution to Knowledge

The empirical findings extracted from this study provide a new understanding of the influence of key factors of disputes arising in construction projects. It presents a comprehensive perspective on this issue by linking leadership and organisational culture to disputes and investigating the influences toward minimising the occurrence of disputes. These findings are then incorporated into one framework as a final outcome of the current study. Therefore, this study provided several contributions to the current literature as follows:

- The proposed framework forms integrated parts that can be used together to assess leaders and organisations to minimize disputes effectively. It combines leadership, culture and dispute avoidance processes in one reliable framework. Previous researchers have focused mainly on processes and strategies of dispute avoidance and resolution. This framework is an addition to the literature on dispute avoidance.
- The study is the first in the area of construction disputes to explore the influences of leadership and culture on disputes. A unique strength is found in its focus on the owner organisations in terms of finding cultural and leadership profiles which can enable better understanding of the practices of these organisations.

- The study also provided a deep understanding of the problem of dispute by identifying the most frequent disputes in public construction. This finding can provide a solid ground for further studies in this area of research.
- The research has added to the construction literature important knowledge about leadership of owner (client) organisations and its roles in the process of improving practices and managing risks.
- More and careful understanding has been provided to the owner-contractor relationship and how to improve it in aligned with bringing real partnership concepts for better future for both parties.

11.4. Research limitations

This research has the following limitations:

- The framework was based on data collected from owner organisations in the Saudi public construction. Therefore, it is not guaranteed to be valid in contractor or consultant organisations due to differences in goals and organisational attitudes. It can be assisted in public construction organisations due to similarities and common attitudes.

- The processes and techniques discussed in this research are meant to be applied before the emergence of disputes, not when disputes are taking place, as the purpose is to avoid disputes. Dispute resolution methods and conflict management are beyond the scope of this research.

11.5. Recommendations and Future research

Concerning the limitations of the current study, several areas of research were identified as useful subjects to conduct further investigations. The recommendations of this study

are relevant to the issues covered in chapter nine. It is recommended that further investigations to be conducted in the following areas:

- Developing a framework for contractors working in public construction is needed since very few studies are found in this area. It is suitable to compare owner and contractor organisations in terms of leadership, attitudes and managerial practices.

- Considerably more research is needed on the influences of leadership and organisational culture on conflicts and disputes in private sector organisations. A comparison with public construction organisations will add important information concerning this area.

- Further investigations are needed on dispute resolutions and ADR in owner and contractor organisations. A comparison with practices used in the UK, for example, will assist construction organisations to improve their practices.

- Further research can be conducted on the link between disputes and other success factors such as effective communications, partnering and competencies of project managers to determine the association and to identify the practices that effectively work toward minimising disputes.

- Gender factor is needed to be investigated in the influences of leadership and culture on disputes between project parties.

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APPENDIX A

The survey

Survey Covering Letter

Dear Participant

I am currently conducting a research on the influences of leadership style and organisational culture on disputes in public construction. This research is taken place in the School of the Built Environment at Herriot -Watt University.

This survey is an important part of the thesis. The purpose of this survey is to investigate the current practice in public construction. It is aimed to identify the most frequent disputes and to investigate the influences of leadership style and organisational culture on disputes.

I am very grateful if you complete this survey. I would also to assure that information provided in this survey would be treated as strictly confidential.

Thanks in advance for your co-operation.

Yours sincerely,
Khaled Alkhamali
School of the Built Environment
Heriot- Watt University

A SURVEY ON THE INFLUENCES OF LEADERSHIP STYLE AND ORGANISATIONAL CULTURE ON DISPUTES IN PUBLIC CONSTRUCRION

This survey is divided into four parts. In Part one, you are asked to fill the general information. In the second part, you are answering questions regarding the culture of your organisation. In the third part you are asked to rate your manager or director regarding his leadership style. In the fourth part you are ranking disputes taken place (between your organisation and contractors). An explanation is provided in the start of each part.

PART 1: GENERAL INFORMATION

1. Your age:
☐ 20-29 years☐30-39 years ☐ 40-49 years ☐50-59 years ☐ ≥ 60 years

2. Your job position:
☐ Assistant Engineer ☐ Supervising Engineer ☐ Project Manager

3. Your experience (in construction):
☐ 0-9 years ☐10-19years ☐ 20-29 years ☐ 30-39 years ☐ ≥ 40 years

4. Your education:
☐ Diploma☐ Bachelor's Degree ☐ Master's Degree☐ PhD ☐ Higher than PhD.

PART 2: ORGANISATIONAL CULTURE ASSESSMENT (OCAI)

Part 2 is a tool that is designed to measure the organisational culture of your (department) organisation. The organisational culture is "a pattern of values, beliefs, basic assumptions which are shared by individuals or groups in organisation and this pattern produce norms that shape the behavior and attitude of people within organisation". Therefore, you need to understand your department as a whole, not in your own personal ideas and behavior, and do not in themselves indicate a good or bad organisation culture.

This part consists of six dimensions, each dimension has four alternatives (A, B, C and D) depending how you can describe your organisation. There no right or wrong answer. Divide 10 points among these alternatives. Chose the higher number to the alternative that is similar to your organisation and a lower number to the one reflects far similarity. Make sure that the total must equal 10. Rate the set of questions from 1 to 24 for what you feel of the existing culture in your organisation. Below is an example of this part:

Example:

	Strategic Emphases	
A	The department emphasizes human development. High thrust, openness, and participation persist.	**6**
B	The department emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued	**1**
C	The department emphasizes competitive actions and achievement. Hitting stretch targets and winning in the marketplace are dominant.	**2**
D	The department emphasizes permanence and stability. Efficiency, control and smooth operations are important.	**1**
	Total	**10**

Dominant Characteristics		
1	A.The organisation is a very personal place. It is like an extended family. People seem to share a lot of themselves.	
2	B. The organisation is a very dynamic entrepreneurial place. People are willing to stick their necks out and take risks.	
3	C.The organisation is very results oriented. A major concern is with getting the job done. People are very competitive and achievement oriented.	
4	D.The organisation is a very controlled and structured place. Formal procedures generally govern what people do.	
	Total	10
Organisational Leadership		
5	A.The leadership in the organisation is generally considered to exemplify mentoring, facilitating, or nurturing.	
6	B.The leadership in the organisation is generally considered to exemplify entrepreneurship, innovating, or risk taking.	
7	C.The leadership in the organisation is generally considered to exemplify a no-nonsense, aggressive, results-oriented focus.	
8	D.The leadership in the organisation is generally considered to exemplify coordinating, organizing, or smooth-running efficiency.	
	Total	10

Management of Employees		
9	A.The management style in the organisation is characterized by teamwork, consensus, and participation.	
10	B.The management style in the organisation is characterized by individual risk-taking, innovation, freedom, and uniqueness.	
11	C.The management style in the organisation is characterized by hard-driving competitiveness, high demands, and achievement.	
12	D.The management style in the organisation is characterized by security of employment, conformity, predictability, and stability in relationships.	
	Total	10

Organisation Glue		
13	A.The glue that holds the organisation together is loyalty and mutual trust. Commitment to this organisation runs high.	
14	B.The glue that holds the organisation together is commitment to innovation and development. There is an emphasis on being on the cutting edge.	
15	C.The glue that holds the organisation together is the emphasis on achievement and goal accomplishment. Aggressiveness and winning are common themes.	
16	D.The glue that holds the organisation together is formal rules and policies. Maintaining a smooth-running organisation is important.	
	Total	10
Strategic Emphases		
17	A.The organisation emphasizes human development. High trust, openness, and participation persist.	
18	B.The organisation emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued.	
19	C.The organisation emphasizes competitive actions and achievement. Hitting stretch targets and winning in the marketplace are dominant.	

20	D.The organisation emphasizes permanence and stability. Efficiency, control and smooth operations are important.	
	Total	10
Criteria of Success		
21	A.The organisation defines success on the basis of the development of human resources, teamwork, employee commitment, and concern for people.	
22	B.The organisation defines success on the basis of having the most unique or newest products. It is a product leader and innovator.	
23	C.The organisation defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key.	
24	D.The organisation defines success on the basis of efficiency. Dependable delivery, smooth scheduling and low-cost production are critical.	
	Total	10

PART 3: LEADERSHIP STYLE QUESTIONAIRE (MLQ)

This questionnaire is to describe the leadership style of (your manager or director) as you perceive it. Please answer all items on this answer sheet. If an item is irrelevant, or if you are unsure or do not know the answer, leave the answer blank. Forty-five descriptive statements are listed on the following pages. Judge how frequently each statement fits the person you are describing. Use the following rating scale:

Not at all	Once in a while	Sometimes	Fairly often	Frequently, if not always
0	1	2	3	4

THE PERSON I AM RATING…….		**0**	**1**	**2**	**3**	**4**
1	Provides me with assistance in exchange for my efforts.					
2	Re-examines critical assumptions to question whether they are appropriate.					
3	Fails to interfere until problems become serious.					
4	Focuses attention on irregularities, mistakes, exceptions, and deviations from standards.					

5	Avoids getting involved when important issues arise.					
..	…….					
..	…….					
45	…….					

PART 4: DISPUTES QUESTIONAIRE

Definition of Dispute:
Dispute, in this research, is defined as "any contract question or controversy (which takes place between the owner and the contractor in the same project) that must be settled beyond the jobsite management staff".

Twenty five causes of dispute are listed on the following pages. Judge how frequently each statement fits the person you are describing. Use the following rating scale:

Not at all	Less frequent	Sometimes	Frequent	Very frequent,
1	2	3	4	5

		1	**2**	**3**	**4**	**5**
Please asses the following causes of dispute accounted to the frequency of occurrence in your organisation:						
1	Ambiguous contract documents					
2	Inadequate design drawings					
3	Lack of competence of project participants					
4	Late payments					
5	Incomplete tender information					
6	Slow owner response					
7	Lack of team spirit					
8	Delay in obtaining approval forms					

9	Unclear responsibilities by project parties					
10	Changing quantities and specifications in B.O.Q.					
11	Ambiguous quality standard					
12	Inadequate contractor selection					
13	Verbal commands					
14	Poor communication					
15	Inadequate Site supervision					
16	Unforeseen site conditions					
17	Inadequate financial planning for the project					
18	Too many cultures in the project (multi-background)					
19	Poor management					
20	Inadequate manpower					
21	Unrealistic expectations					
22	Unrealistic tendering					
23	Delay by contractor than contract duration					
24	Slow contractor response					
25	Traits and behaviours of the project participant personal					
Other causes of disputes are not listed here: 1. 2. 3. 4. 5.						

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To whom it may concern,

This letter is to grant permission for the above named person to use the following copyright material;

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Sincerely,

Robert Most
Mind Garden, Inc.
www.mindgarden.com

APPENDIX B

The semi-structured interviews

Interview Question one: Could you tell us please about your name, experience in public construction, organisation and current position?

Interview Question two: Introducing the definition of dispute, in this research, as *"any contract question or controversy (which takes place between the owner and the contractor in the same project) that must be settled beyond the jobsite management staff", a*re you satisfied with the current practice and efforts of dispute minimization in the OPC? How can you evaluate the seriousness of disputes taken place in the current practice of public construction?

Interview Question three: What is the role of leadership in the OPC to minimize disputes? What are the influential qualities attributes and skills that leaders need to minimize dispute?

Interview Question four: Introducing organisational culture as "*a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration that has worked well enough to be considered valid, and therefore, to be taught to new members as the correct way you perceive, think, and feel in relation to those problems*." Taking a look to the figure of cultural types (clan, adhocracy, market and hierarchy), can you tell us what type of organisational culture is preferred in the OPC to minimize disputes?

Interview Question five: What is the role of organisational culture in the OPC to minimize disputes? What are influential characteristics and values that can be found in the OPC to minimize disputes?

Interview Question six: How can the (owner-contractor) relationship be improved in the public construction context?

Interview Question seven: Apart from both leadership and organisational culture influences, what are the major strategies and techniques that you suggest to be employed by the OPC to minimize disputes?

APPENDIX C

Framework validation

Dear Participant

I am presently preparing a thesis on "the influences of leadership style and organisational culture on disputes in public construction" as part of my PhD research in construction management.

In this research a framework for minimizing disputes in the owner organisations of public construction has been developed. An important element of the study is to validate the proposed framework.

According to your position and experience of disputes in public construction, you are invited to take a look at the framework and its parts and then answering the questions and to give your opinion.

Your assistance is highly appreciated.

Yours sincerely,
Khaled Alkhamali
School of the Built Environment
Heriot- Watt University

Framework validation

Based on the above description of the proposed framework on minimizing disputes in public construction, can you please answer the following questions?

Question 1. Your job position:
……..

Question 2. Your experience (in construction):
……..

Question 3. Your organisation field:
……...

		1	2	3	4	5	Don't know
	Question 4. Please indicate your rate of practicality of the following parts. (Where 1= Impractical and 5 = Practical).						
	Part 1: Leadership style						
	Part 2: Organisational culture						
	Part 3: Organisational strategies an processes						
	Part 4: Dispute avoidance techniques						
	Question 5. Please indicate your rate of effectiveness of the following parts. (Where 1= Ineffective and 5 = Effective).						
	Part 1: Leadership style						
	Part 2: Organisational culture						
	Part 3: Organisational strategies an processes						
	Part 4: Dispute avoidance techniques						
	Question 6. Please indicate your rate of practicality and effectiveness of the entire framework. (Where 1= Impractical/Ineffective and 5 = Practical/Effective).						
	Framework practicality						
	Framework effectiveness						

Question 7. Could you please tell us your opinion on this framework regarding its practicality, effectiveness, strengths and weaknesses?

……

……

……

……
……

Question 8. Could you please tell us, in your opinion, how can this framework be improved?

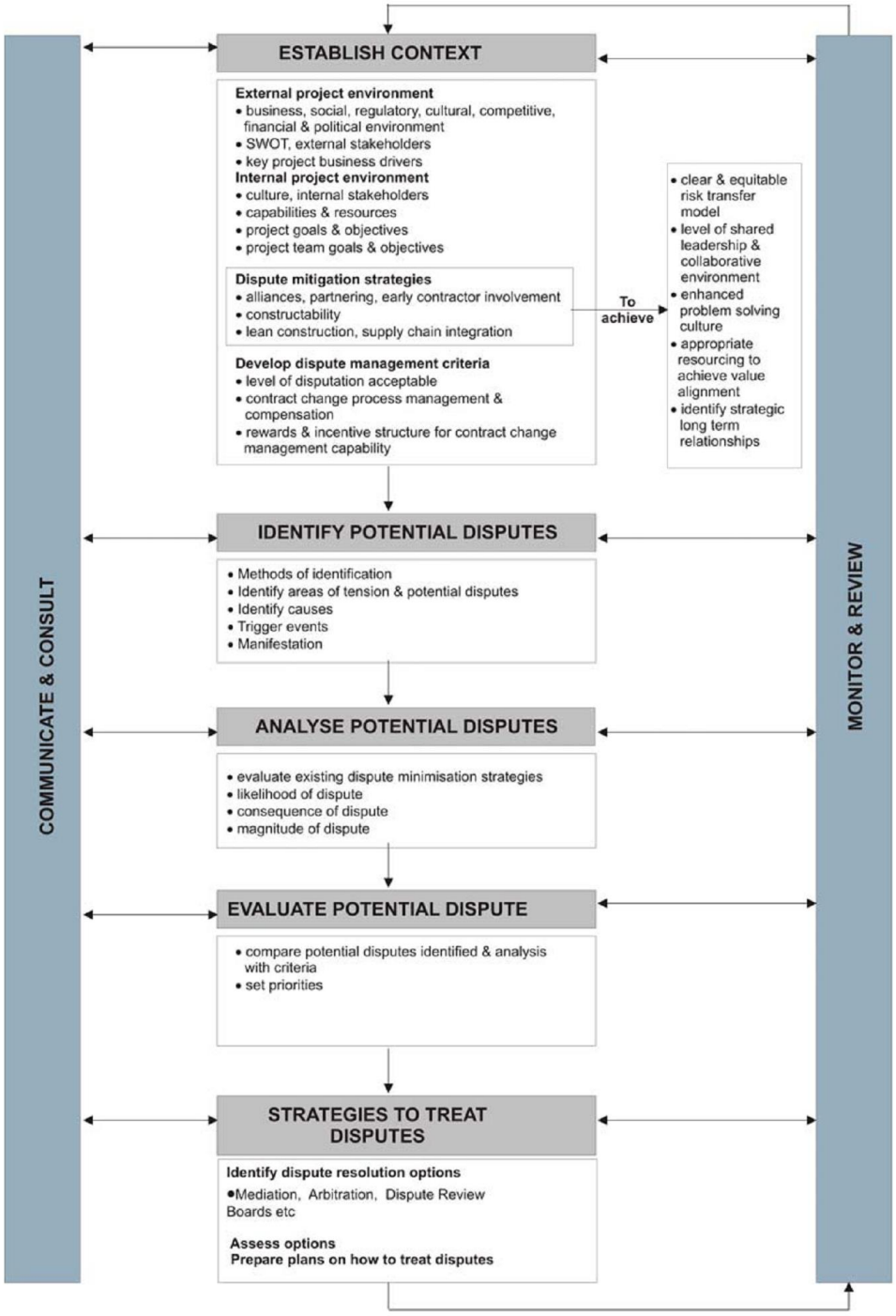
……
……
……
……
……

Question 9. Would you like to add any other comments about the framework?

……
……
……
……
……

APPENDIX D

Dispute health check, (CRC, 2007)



APPENDIX E

Sample of calculations in the survey

Type	N	Min.	Max.	M	SD
OCD	117	0.50	6.17	3.69	1.21
OCA	117	1.17	7.50	3.19	1.11
OCC	117	0.50	6.00	1.85	0.48
OCB	117	0.50	2.50	1.27	0.86

Style	N	Min.	Max.	M	SD
TRC	117	0.75	3.38	2.22	0.54
TRF	117	1.20	3.10	2.02	0.50
LSF	117	0.00	1.88	0.80	0.43

The above data calculations contain the following:
Mean =M
Maximum=Max
Minimum= Min
SD=Standard Deviation

1. Calculations of Mean M in the OCAI.

$$M = \frac{\sum_{i=1}^{i=n} M_i}{n}$$

Σ = Sum of
M = Individual means
n = Sample size (number of data points)

$$MA = \mathrm{OC1A} + \mathrm{OC5A} + \mathrm{OC9A} + \mathrm{OC13A} + \mathrm{OC17A} + \mathrm{OC21A}/6$$

$$MB = \mathrm{OC1B} + \mathrm{OC5B} + \mathrm{OC9B} + \mathrm{OC13B} + \mathrm{OC17B} + \mathrm{OC21B}/6$$

$$MC = \mathrm{OC1C} + \mathrm{OC5C} + \mathrm{OC9C} + \mathrm{OC13C} + \mathrm{OC17C} + \mathrm{OC21C}/6$$

$$MD = \mathrm{OC1D} + \mathrm{OC5D} + \mathrm{OC9D} + \mathrm{OC13D} + \mathrm{OC17D} + \mathrm{OC21D}/6$$

$$\text{MA (OC)} = \frac{\sum_{i=1}^{i=n} MA_i}{n}$$

MA (OC) = = the sum of all means of clan organisational culture for all respondents

$$\text{M} = \frac{373.5}{117} = 3.19$$

2. Calculations of Mean M in the MLQ.

$$MTF = \mathrm{L10} + \mathrm{L18} + \mathrm{L21} + \mathrm{L25} + \mathrm{L6} + \mathrm{L14} + \mathrm{L23} + \mathrm{L34} + \mathrm{L9} + \mathrm{L13} + \mathrm{L26} + \mathrm{L36} + \mathrm{L2} + \mathrm{L8} + \mathrm{L30} + \mathrm{L32} + \mathrm{L15} + \mathrm{L19} + \mathrm{L29} + \mathrm{L31}\ /20$$

$$MTC = \mathrm{L1} + \mathrm{L11} + \mathrm{L16} + \mathrm{L35} + \mathrm{L4} + \mathrm{L22} + \mathrm{L24} + \mathrm{L27} + \mathrm{L3} + \mathrm{L12} + \mathrm{L17} + \mathrm{L20}\ /12$$

$$MLF = \mathrm{L5} + \mathrm{L7} + \mathrm{L28} + \mathrm{L33}\ /4$$

Example:

$$\text{M (TC)} = \frac{\sum_{i=1}^{i=117} MTC_i}{117}$$

MA (TC) = the sum of all means of transactional leadership among for all respondents

$$\mathrm{M} = \frac{260.37}{117} = 2.22$$

3. Calculations of Standards Deviation *SD.*

$$SD = \sqrt{\frac{1}{n-1}\sum_{i=1}^{i=n}(M_i - M)^2}$$

$$SD = \sqrt{\frac{1}{117-1} * 142.7}$$

$$SD = \sqrt{1.23017}$$

$$SD = 1.11$$

APPENDIX F

Dispute results-current practice

Common dispute causes in public construction.

	Dispute cause in the public construction	Code
1	Ambiguous contract documents	DS1
2	Inadequate design drawings	DS2
3	Lack of competence of project participants	DS3
4	Late payments	DS4
5	Incomplete tender information	DS5
6	Slow owner response	DS6
7	Lack of team spirit	DS7
8	Delay in obtaining approval forms	DS8
9	Unclear responsibilities by project parties	DS9
10	Changing quantities and specifications in B.O.Q.	DS10
11	Ambiguous quality standard	DS11
12	Inadequate contractor selection	DS12
13	Verbal commands	DS13
14	Poor communication	DS14
15	Inadequate Site supervision	DS15
16	Unforeseen site conditions	DS16
17	Inadequate financial planning for the project	DS17
18	Too many cultures in the project (multi-background)	DS18
19	Poor management	DS19
20	Inadequate manpower	DS20
21	Unrealistic expectations	DS21
22	Unrealistic tendering	DS22
23	Delay by contractor than contract duration	DS23
24	Slow contractor response	DS24
25	Traits and behaviours of the project participant personal	DS25

Dispute correlations

Dispute code	Dispute cause	Dispute cause (in correlations)
DS8	Delay in obtaining approval forms	-Lack of competence of project participants -Late payments -Slow owner response
DS9	Unclear responsibilities by project parties	-Inadequate design drawings -Lack of competence of project participants - Delay in obtaining approval forms
DS10	Changing quantities and specifications in B.O.Q.	-Lack of competence of project participants -Late payments -Slow owner response -Delay in obtaining approval forms
DS11	Ambiguous quality standard	-Lack of competence of project participants -Late payments -Incomplete tender information -Lack of team spirit -Unclear responsibilities by project parties
DS12	Inadequate contractor selection	-Incomplete tender information -Slow owner response -Changing quantities and specifications in B.O.Q.
DS14	Poor communication	-Lack of competence of project participants -Late payments

		-Incomplete tender information -Lack of team spirit -Unclear responsibilities by project parties -Ambiguous quality standard
DS17	Inadequate financial planning for the project	-Late payments -Incomplete tender information -Slow owner response -Unclear responsibilities by project parties -Changing quantities and specifications in B.O.Q. -Ambiguous quality standard
DS18	Too many cultures in the project (multi-background)	-Inadequate design drawings -Late payments -Unclear responsibilities by project parties -Inadequate Site supervision
DS19	Poor management	-Late payments -Incomplete tender information -Lack of team spirit -Inadequate contractor selection -Poor communication
DS23	Delay by contractor than contract duration	-Incomplete tender information -Delay in obtaining approval forms -Inadequate contractor selection -Poor communication
DS24	Slow contractor response	-Incomplete tender information -Delay in obtaining approval forms -Inadequate contractor selection -Poor communication

DS25	Traits and behaviours of the project participant personal	-Delay by contractor than contract duration -Slow contractor response
DS7	Lack of team spirit	-Ambiguous quality standard -Poor communication -Poor management
DS6	Slow owner response	-Delay in obtaining approval forms -Changing quantities and specifications in B.O.Q. -Inadequate contractor selection -Inadequate financial planning for the project
DS5	Incomplete tender information	-Ambiguous quality standard -Inadequate contractor selection -Poor communication -Inadequate financial planning for the project -Poor management -Delay by contractor than contract duration -Slow contractor response
DS4	Late payments	-Delay in obtaining approval forms -Changing quantities and specifications in B.O.Q. -Ambiguous quality standard -Poor communication -Inadequate financial planning for the project -Too many cultures in the project (multi-background)

		-Poor management
DS3	Lack of competence of project participants	-Delay in obtaining approval forms -Unclear responsibilities by project parties -Changing quantities and specifications in B.O.Q. -Ambiguous quality standard -Poor communication

Inter-correlations of disputes.

		DS1	DS2	DS3	DS4	DS5	DS6	DS7	DS8	DS9	DS10	DS11	DS12	DS13	DS14	DS15	DS16	DS17	DS18	DS19	DS20	DS21	DS22	DS23	DS24	DS25
DS1	Pearson Correlation	1																								
	Sig. (2-tailed)																									
DS2	Pearson Correlation	.288**	1																							
	Sig. (2-tailed)	.002																								
DS3	Pearson Correlation	-.097	.123	1																						
	Sig. (2-tailed)	.300	.187																							
DS4	Pearson Correlation	.002	.193*	-.054*	1																					
	Sig. (2-tailed)	.984	.038	.556																						
DS5	Pearson Correlation	-.169	.219*	.075	.211*	1																				
	Sig. (2-tailed)	.068	.017	.420	.023																					
DS6	Pearson Correlation	.295**	.191*	.104	.094	-.198*	1																			
	Sig. (2-tailed)	.001	.040	.265	.312	.032																				
DS7	Pearson Correlation	-.120	-.020	.142	.144	.140	.044	1																		
	Sig. (2-tailed)	.197	.828	.128	.121	.133	.639																			
DS8	Pearson Correlation	.172	.289**	.332**	.334**	.100	.432**	.098	1																	
	Sig. (2-tailed)	.064	.002	.000	.000	.286	.000	.291																		

Continued to the previous table (Inter-correlations of disputes)

DS9	Pearson Correlation	.075	.454**	.429**	.382**	.175	.234*	.125	.316**	1																	
	Sig. (2-tailed)	.425	.000	.000	.000	.060	.011	.181	.001																		
DS10	Pearson Correlation	.164	.284**	.367**	.388**	.142	.335**	.039	.503**	.221*	1																
	Sig. (2-tailed)	.078	.002	.000	.000	.127	.000	.677	.000	.017																	
DS11	Pearson Correlation	.173	.206*	.493**	.594**	.317**	.052	.332**	.272**	.525**	.083	1															
	Sig. (2-tailed)	.062	.026	.000	.000	.000	.579	.000	.003	.000	.373																
DS12	Pearson Correlation	.060	.080	.179	-.117	-.335**	.343**	.013	.281**	.052	.359**	.147	1														
	Sig. (2-tailed)	.523	.391	.053	.208	.000	.000	.892	.002	.576	.000	.113															
DS13	Pearson Correlation	.058	.211*	.232*	-.005	.072	-.114	.091	.125	.104	.008	.121	.096	1													
	Sig. (2-tailed)	.534	.022	.012	.959	.439	.222	.328	.178	.266	.936	.192	.301														
DS14	Pearson Correlation	.004	.289**	.307**	.452**	.349**	-.192*	.312**	.036	.397**	.067	.460**	.054	.098	1												
	Sig. (2-tailed)	.968	.002	.001	.000	.000	.038	.001	.704	.000	.472	.000	.561	.294													
DS15	Pearson Correlation	.166	.123	.259**	.242**	-.143	.257**	-.032	.249**	.236*	.129	.214*	.225*	.029	.325**	1											
	Sig. (2-tailed)	.074	.188	.005	.009	.124	.005	.731	.007	.010	.166	.020	.015	.760	.000												
DS16	Pearson Correlation	.013	.271**	.309**	.333**	.393**	.026	.187*	.250**	.083	.228*	.275**	.080	.233*	.075	.103	1										
	Sig. (2-tailed)	.887	.003	.001	.000	.000	.779	.043	.007	.373	.014	.003	.390	.011	.419	.268											
DS17	Pearson Correlation	.164	.096	.274**	.386**	-.458**	.353**	.088	.466**	.381**	.551**	.298**	.271**	.080	-.077	.232*	.249**	1									
	Sig. (2-tailed)	.078	.303	.003	.000	.000	.000	.344	.000	.000	.000	.001	.003	.389	.410	.012	.007										

Continued to the previous table (Inter-correlations of disputes)

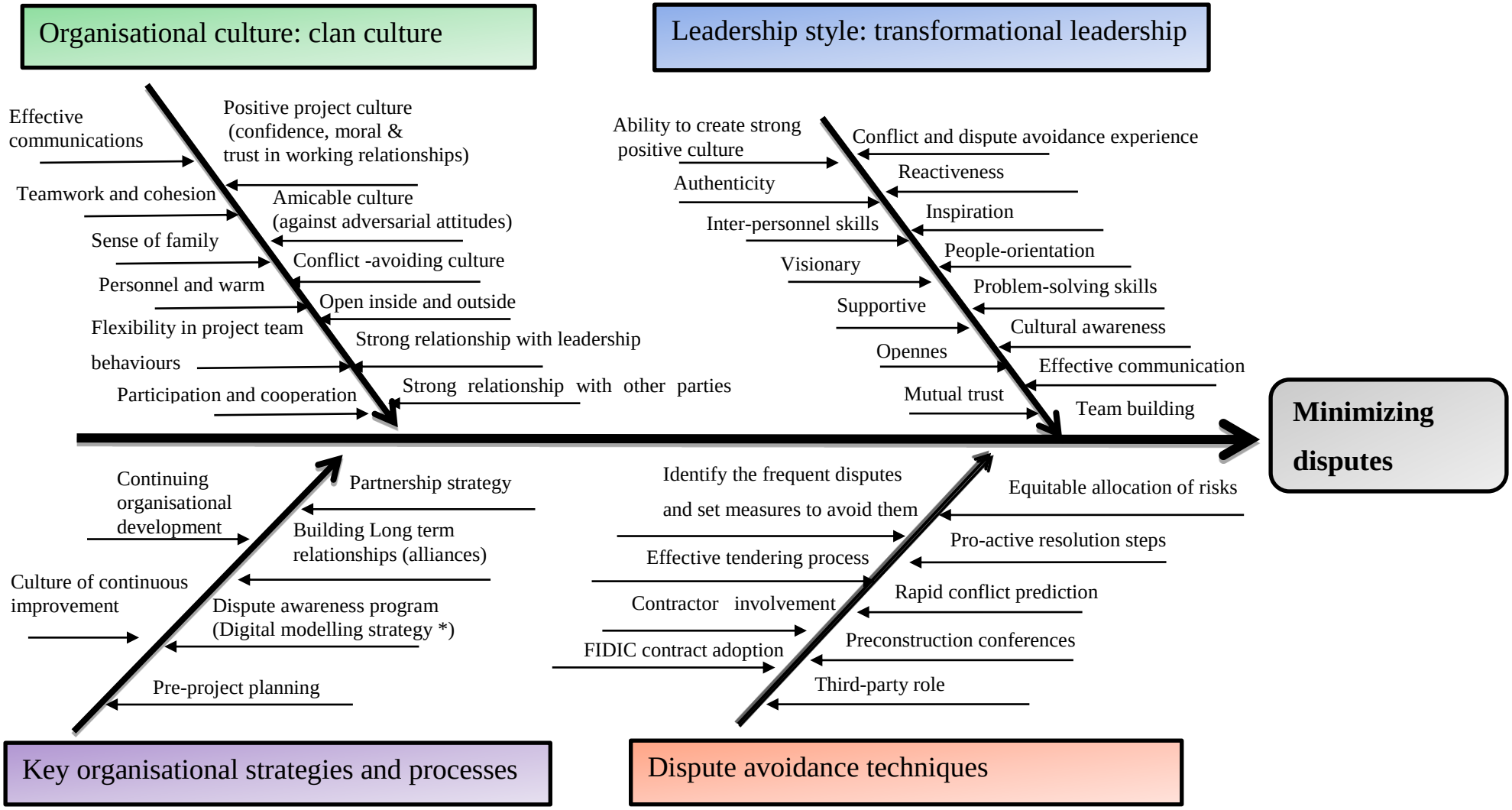
DS18	Pearson Correlation	.139	.420**	.242**	.335**	.309**	-.153	-.034	.091	.357**	-.024	.293**	-.182*	.097	-.048	.307**	.170	.040	1							
	Sig. (2-tailed)	.135	.000	.009	.000	.001	.100	.719	.327	.000	.801	.001	.050	.298	.606	.001	.067	.668								
DS19	Pearson Correlation	-.281**	-.030	.084	.310**	.551**	-.145	.314**	-.052	.202*	-.078	.265**	.500**	.089	.342**	-.192	.226*	.034	.084	1						
	Sig. (2-tailed)	.002	.744	.370	.001	.000	.120	.001	.575	.029	.404	.004	.000	.339	.000	.039	.014	.715	.366							
DS20	Pearson Correlation	-.218*	.038	-.107	.080	.109	-.190*	-.088	.116	.085	.030	-.096	-.198*	-.012	-.124	-.037	-.101	.080	.187*	.139	1					
	Sig. (2-tailed)	.018	.684	.250	.391	.242	.041	.346	.211	.364	.749	.304	.033	.895	.182	.695	.280	.391	.043	.135						
DS21	Pearson Correlation	-.210*	-.141	-.102	-.137	.104	-.009	-.014	-.051	-.048	.041	-.096	-.015	.036	-.014	-.210*	-.141	-.102	-.137	.104	-.009	1				
	Sig. (2-tailed)	.023	.130	.274	.142	.266	.927	.877	.586	.610	.663	.301	.875	.701	.877	.023	.130	.274	.142	.266	.927					
DS22	Pearson Correlation	-.193*	.041	-.137	-.012	.053	-.125	-.119	.099	.093	.154	-.133	-.154	-.093	.108	.030	.031	.138	.113	.131	-.051	.014	1			
	Sig. (2-tailed)	.037	.661	.142	.902	.572	.181	.201	.290	.316	.098	.154	.096	.318	.245	.746	.739	.138	.226	.159	.586	.879				
DS23	Pearson Correlation	-.068	.098	.217*	-.048	.474**	-.208*	.194*	.443**	-.002	.188*	.001	.398**	.139	.368**	-.017	.278**	.169	-.052	.077	-.026	-.036	.042	1		
	Sig. (2-tailed)	.466	.293	.019	.607	.000	.024	.036	.000	.979	.042	.994	.000	.135	.000	.857	.002	.069	.578	.411	.784	.703	.653			
DS24	Pearson Correlation	.060	.050	.224*	.083	.321**	.093	.141	.312**	.135	.093	.151	.443	-.095	.369**	.132	.073	.181	-.137	.082	-.231*	-.003	.125	.223*	1	
	Sig. (2-tailed)	.518	.594	.015	.375	.000	.316	.130	.000	.147	.317	.105	.000	.310	.000	.154	.431	.051	.139	.379	.012	.975	.179	.016		
DS25	Pearson Correlation	-.034	-.079	.151	-.002	-.129	.007	-.108	-.114	.116	-.075	.085	.010	-.048	.169	.026	-.046	-.042	-.087	.108	-.099	.160	.053	.325	.402**	1
	Sig. (2-tailed)	.716	.396	.103	.986	.167	.941	.247	.221	.215	.422	.360	.913	.605	.068	.780	.619	.654	.353	.246	.288	.085	.567	.000	.000	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

APPENDIX G

Framework for minimizing disputes in the owner organisations of public construction



List of publications

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Alkhamali, K, Motawa, I & Ogunlana, S (2014). "The influence of organisa*tional culture on construction disputes." in Proceedings for the Seventh Saudi Conference SSC2014, Edinburgh, UK.*

Alkhamali, K, Motawa, I & Ogunlana, S (2014). "The influence of leadership style on construction disputes*." ARCOM 2014 conference's,* 1-3 Sept, *Portsmouth, UK, (Under review).*